ΟΥΡΑΝΟΣΚΟΠΙΑ,
Or,

The contemplation of the Heavens, in a perpetual Speculum, or general *Prognostication* for ever.

Wherein is succinctly demonstrated the Names and Natures of the Signs, Planets and Aspects, Terms of Art, order of the Spheres, the Colours, Magnitudes, Motions, Solid Proportions and Distances of the seven Planets from the earth. The natural Causes and Significations of the Eclipses of the Luminaries, Earth-quakes, Thunders, Lightnings and Comets, *&c.*

Amplified with such Precepts and Examples and Operations, that any of ordinary capacity (by their own endustry) may be enabled to resolve most propositions in Astronomy, the right and oblique ascensions and descensions of all the Planets and fixed Stars: To calculate the Diameters, Circumferences, Solidity and Superficies of all Globs and Spheres: The Dominicall Letters, Golden-numbers, Epacts, Moveable feasts and ages of the Moon, *&c.* for any time past, present, or to come.

By *IAMES CORSS* Philomath.

EDINBURGH,
Printed by a Society of *Stationers*, 1662.

To the truely Noble, moſt Worthy and Singular Patronage of Vertue, my honoured Friend,

THOMAS WOOD

The Author, in Teſtimony of his (endeared) affection, and gratitude for civilities received, humbly preſents his

URANOSCOPIA.

BRITISH 16 JU 77 MUSEUM

James Corſs.

ΟΥΡΑΝΟΣΚΟΠΙΑ,

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To the as much ſingular for Vertue, as eminent for Honour, the Magnificent and Illuſtrious Lord, *William* Earle of *Glencairn*, Lord *Kilmars* and *Finlayſtoun*, *Cuninghame*, Lord High Chancellor of *Scotland*, &c.

Moſt Illuſtrious Lord,

I Have brought forth to breath the Common Air, this ſmall Tract, at the deſire and command of ſeveral (ingenious) Gentlemen, whoſe high merits, ſtraightly requires at my hands, a devoutly-obedient, ſtrict and ſudden performance, of their imperious and not to be queſtioned commands. If the Rayes of your Tranſcendant Magnitude had not given it life, I was without any hope (after I had conceived it) ever to ſee it breath. And now I am conſtrained to dedicate it unto your Lordſhip, before whom it ought to have appeared as richly endued with Ornaments, as you are with Vertues. Vouchſafe (I beſeech you) to accept, in excuſe of my boldneſſe, the neceſſity of my obedience, by receiving this Infant into your high and gracious protection.

Being now delivered from the Preſſe, I am humbly bold to preſent it unto your Lordſhips Patronage, at no leſſe a diſtance then the Center can be ſuppoſed from the Circumference, not queſtioning but your high candour and courteſie will acquit me of the preſumption.

Great Lord, I do it not, as if I hereby thought to add the leaſt Atome to your Tranſcendant Magnitude and Merit; (a thing impoſſible to your inferiours) but to ſet the better Luſtre upon my Labours, that their paſſage through the world may be the more current, as having the impreſſe of your High and Illuſtrious Name and Authority upon them. Beſides your exquiſite ſkill in, and affection to all Mathematical Arts and Sciences, is ſufficient to entitle you *Mecœnas* to a Piece of far greater worth and Learning then this I preſent you with: But the meridian of my glory is this, *That the Pilot of my poor Veſſel is a Perſon moſt Illuſtrious and Excellent, in whoſe breaſt, the ſublimity of all vertues are concentred.*

I hope your Lordſhip will excuſe the meanneſſe of the preſent, (ſeeing the ſmalleſt Penny is ſtamped with His Majeſties Impreſſe, as well as the greateſt *Jacobus*) for Princes cannot expect from their Inferiours Preſents proportionable to their high magnitude and merit. And though I cannot now (by this affectionatly-bold-attempt) avoid the cenſure of raſhneſſe, yet this is my comfort, that I have but aſſayed to do that whereunto I was wholly oblieged (by your High-meriting favours) and that with the greateſt affection and ſubmiſſion imaginable, that the world may know how much I am

My LORD,
Your moſt humble and
moſt devoted ſervant,
JAMES CORSS.

To

To the Reader.

I Have oftentimes lamented with my self to see so many Learned Mathematicians to arise in sundry parts of the world, and so few to appear in our Native Country. In other things we are parallel with (I shall not say in a superlative degree far above) other Nations; but in Arts and Sciences Mathematical, all exceed us. And had not that thrice Noble and Illustrious Lord, viz. John Lord Nepper, Barron of Marchiston, &c. *preserved the honour of our Nation by his admirable and more then mortal invention of* Logarithms, *we should have been buried in oblivion, in the memories of Forraign Nations; but his famous Works, and admirable Skill in sublime Sciences, together with his unparalled Invention aforesaid, makes us co-equal to the most subtile Nations in the Universe. Certainly, the good Angels of God in an extraordinary Revelation made known to this Illistrious divine Lord, the* grand Secret of Numbers perfection, *which all the world had been searching for but in vain, untill this great Lord and Luminary, (the* Generalissimo *of all wise men) made the light thereof to shine not only in* Britains *Horizon, but over all the Universs; who now are enabled by the divine beams of his sacred mind to see into the bottom of* Numbers *Mystery, &c. He was a mighty* Mœcenas *to all* Mathematicall *Studies, but who will imitate him now, I know not.* O Noble Lord *Naper,* Baron of *Marchiston,* &c. my Genius is too dull to commend thee, or to give thy sacred wisdom the thousand part of thy due praise, *&c.* But *to return, the only thing that produceth so few* Mathematicians *in this famous and ancient Kingdom, is first, lack of encouragement; There's no man (of eminency) takes notice of an* Artist *in order to encouragement. None will stand up to interceed in his behalf, though he had all Arts and Sciences lodged within the Circumference of his brain or capacity, and all Qualifications requisit (in a Gentleman) for any*

employment publick or private, Martial or Civil; yet another of inferiour parts, &c. shall be had in far more estimation, sought unto, enquired for, &c. The second cause is, the super-abounding ignorance and prejudicate opinion of some persons Literate and illiterate, of all Functions, who know nothing as they should know; and the knowledge which they cannot imitate, they hate, Nemo enim Arti inimici nisi ignorans, are born, lives and dies ignorant of all sublime Sciences, from such no encouragement is, or can be expected.

Therefore, I humbly entreat You noble Lords and Gentlemen, who (reads this Treatise and) moves in superiour Sphers, that as the Almighty hath made you Patrons of Honour, so You would (be pleased to) make Your selves also Patronages of Vertue, in cherishing, countenancing, and encouraging of Mathematicians, assigning them to such stations as necessarily falls within the limits of, and cannot otherwise be managed nor duly execute but by a subtile Artist. For the utility and benefit of the Mathematicks is of such importance, that without the assistance thereof we can scarce live, much lesse preserve our selves from danger, or hinder the irruption of a Forreign (or Domestick) Enemy. And if an effectual course be taken with Artists in order to encouragement you shall have plurality of qualified and well skil'd Mathematicians ready to serve you upon all occasions or designes Martial or Civil, Publick or Private, by Sea or Land, who will not only give you a true account of the Distances, Magnitudes and Motions of the Cœlestial Orbs and eclipses of the Luminaries. The probability of the Heroick Hypothesis of Copernicus concerning the Earths motion; and solving the various conjectures of the Ancients concerning its species, &c. but also to Measure, Plot, and give the true Simitry, Scituation and Content of your Land: To search out all kinds of Longitudes, Latitudes, Profundities and Altitudes, accessible or inaccessible. to fabricate your Cities, Towns, Castles, Forts, Palaces and all manner of Edifices; To plant your Canons, conduct your Mines which rents the Rocks and tares the Earth, to the utter ruine and destruction of an Enemy. To trace the way of the Sun upon the Earth, and by the shadow of an

Axis

Axis, to point out unto us those atoms of Time unto which our artificial Day *is* Artificially *divided, &c. I think there is no Gentlman (who deserves that denomination) that will not only desire to learn and know these Arts and Sciences, but also confesse that they are most requisite in all Nations, especially in this most ancient Kingdom; but (alas) they are wanting, not because of any imbicility or defect that's in our Intellectuals, for no Nation under Heaven can parallel us for the subtilty of Sciences, sagacity of apprehension, &c. but our only silence and unwillingness to these Studies that we do not professe them in publique as other Nations generally do, is because we want encouragement.*

Certainly, there is no noble, liberal, or free mind of Civil *or* Military *Profession, high, or low degree, of whatsoever Function or Station, but will take great delight in the Arts and Sciences Mathematical; to see how by Art a man can calculate the places of all the Planets, fixed Stars, and Eclipses of the* Luminaries, *and that for any time past, present, or to come. To erect Cœlestial scems upon Nativities, framing of* Astrological *Speculums, Revolutions, Transits, Directions, &c. To measure the distances of places remote and far asunder, without approaching nigh them, &c. these things are absolutely and perfectly prodigious to vulgar heads, whose dimmer eyes cannot penetrate the astral Spheres, &c.*

In all preceding ages from the Creation the Mathematicks *hath found respect and entertainment amongst the greatest Princes and Potentates, insomuch that History reports that the noble sons of* Seth *were the first propagators of it; others, that* Atlas *King of* Mauritania *was the first that discovered the motions of the* Sun, Moon *and* Stars, *and put his Invention into Writing, and afterwards committed the same to his Scholer* Hercules; *who (as some Histories relate) first brought the Sphere into grace, whereupon arose that fable,* Antlantem *Hercules* auxilio Cœlum sustinere humeris, *but* Josephus *lib. 1. cap. 3. de Antiq. Jud. attributes it to the sons of* Seth, *but be the Inventers of it who will, a Princely study it is, and we find many ad-*

mirable

mirable men (even Kings and Princes) in all ages to be famous therein. Nevertheleſſe, this laſt age is to be wondered at, as producing more admirable and rare diſcoveries in the admired frame and machina of the viſible world then any before had done, &c.

But to return to my task in hand, the enſuing Treatiſe which I have entituled URANOSCOPIA, I ſeriouſly recommend to the peruſal of all ingenuous Gentlemen who (of all others) can beſt determine the worth thereof, not doubting but it will as much delight the wiſe (to whoſe ingenious cenſure I freely offer it) as offend the fooliſh humour of the ignorant and malicious, whoſe approbation or exprobation I value not, ſtudying to approve my ſelf to God in a good Conſcience. It's my ardent affection (and ambition) to be a ſervant to my Dread Soveraign, and to my native Countrey-men and friends, which puts the pen into my hands, elſe I ſhould have buried my Conceptions when they firſt budded: Beſides, I tremble to think what became of that ſervant who hid his Lords money in a Napkin, and did not improve it in ſuch labours as might have been for his Lords glory, profitable to himſelf and others.

I confeſſe, God hath endewed me with a little knowledge, eſpecially in his works of Creation, that thereby I have endeavoured (in contemplation of his works with a Sacred-ſecret delight) to know himſelf, ſo, that whatſoever I ſeek on Earth (and wants with indifferency) is all and only to be found in Heaven, where it's a honour to be a Grandee in Gods Court, to ſit on Chriſts Throne, there's glory to ſhine as the Sun, to be a brother to Saints, a peer to all Angels, a ſpouſe of the Son of God; with whom there's honour without envie, glory without vanity, and ſtate without change. I do not call thoſe gifts little, or few, which God hath beſtowed upon me, for that would argue (if not blaſphemy, yet) extream ingratitude; but comparatively in reſpect of that which ſhortly ſhall be revealed to the ſons of men.

To conclude, if this ſmall Tract find thy candid acceptation, it will encourage me to publiſh other things both profitable and pleaſant; In the interim, if thou be deſirous of wiſdom, ask it of God, who gives it freely; be diligent and

ſtudious

ſtudious, and though thou mayeſt (perhaps) be a perſon of honour that reads this Tract, *yet it will not detract a grain from thy glory, nor diminiſh thy (due) reſpect to be a Student in the Sacred Cœleſtial Sciences. And altbough that moſt men (ſeek how they may profite and advance themſelves (making Earth their principal aim) that they may excell others) out of their blind and depraved judements, thinks that time and labour loſt that is ſpent upon the Princely* Arts *and* Sciences Mathematical, *yet there is ſome ſelect Gentlemen (whoſe inclination to vertue, makes them capable of that denomination) whom I know in this Countrey that are of more ſolid principles, and (conſidering ſeriouſly the incredible profit and excellency of the* Mathematicks) *have applyed their minds accordingly (with fixed reſolutions) to the Study of theſe noble* Arts *and* Sciences, *and are (now) become notable proficients: There may haply be many others in this Nation eminently gifted in all liberal* Sciences, *though they obſcure it, but its my unhappineſſe I know them not, or if I do, they are perſons inacceſſible, of ſuch magnitude and altitude, that admits not of any inferiour acceſſe, &c. Wherefore I ſhall now humbly take my leave, not queſtioning but thy Courteſie will freely accept what I have here communicated, having other matters ſhortly ready to publiſh, that may witneſſe to the World how much am*

a real Friend and Servant to all honeſt Ingenious men and Arts,

JAMES CORSS.

From my Houſe in the head of *Robertſons* cloſs, neer to Lady *Teſters* Church in *Edinb.* April 3. 1662.

To

To my ſingularly honoured Friend Mr. *Iames Corſs*, upon his *Treatiſe* entituled, URANOSCOPIA.

SIR could I dictate to *Apollo's* lyre,
His ſacred Anthems; were my fancy high'r
Then wit Meridianiz'd could feign, yet I
Should juſtly fear my inſufficiency
In this endeavour; for he who would praiſe
Thee wel, muſt firſt court bright *Urania's* rayes.
Dazling (yet dear) *Urania*, O that I
Could once but taſte thy ſweetneſſe e're I dy!
But ceaſe fond confidence, wave thoſe endea-
vors,
For bleſſed *Corſs* ingroſſeth all her favors,
He's her *Adonis*, ſhe to him imparts
Her ſacred Secrets, her abſtruſer Arts,
By which he raiſes Monuments of Fame,
Perpetuates his thriſe ingenious Name.
And thou fam'd * Town, whoſe occidentall Towers
Exults in his Production, when the powers
Of rigid Fates, Illuſtrious Cities dooms
To be intomb'd, within their aſhy wombs;
Thou needs not fear that black oblivion ſhall
Triumph upon thy glories Funerall;
For while bright *Titans* Chariot doth run
Thy *Corſs* ſhall prove thy fam'd *Manſolium*.

* *The Citie of Glaſgow*

Tho. Wood.

Upon

Upon my Ingenious and much honoured Friend Mr. *James Corſs*, his URANOSCOPIA.

GReat *Glaſgow's* glory! Oh that I could raiſe
A Monument might magnifie thy praiſe,
But that's an *Herculean* task, yet thine
Own Works have done it, thus thy praiſes ſhine
Beſt from thine own Atchievements, but leſt I
Shadow thy praiſe, with my obſcurity,
I will be ſilent; Let who liſt aſpire
To ſpeak thy praiſe, I rather will admire
Thy matchleſs Arts, that makes thee ſoar ſo high
To know the language of the ſpangled sky,
Obſerv'ſt their order, what news their thou hears
Thou tells us all, the wonders of the Spheres,
Thy boundleſſe skill, with ſuch unmated glory
Hath crown'd thy name, (that it's a living ſtory
Of thy great worth) which may be well enrol'd
Not into Paper, but rich leaves of Gold.

Tho. Mackconvy.

Upon

Upon my honoured Friend Mr. *James Corſs* his URANOSCOPIA.

LEt heaven and earth and all their hoſts conjoyn
Their lights together, all in one light let ſhine
To ſhew the glory is in aſtrall Art,
That God and Nature doth to man impart,
Which doth expreſſe a Divine Dialect
Whoſe beams from earth to heaven it doth reflect,
From worldling wit, ſuch knowledge is abſtract,
But this our Author *in Art is exact*
In-ſublime manner, manifeſts his skill
To Mathematicks, *he doth ſhew good will,*
The knowledge whereof, could not be the worſs
That every village had but ſuch a Corſs.

Alex. Auchmuty *Philom.*

A Croſtick to my Ingenious Friend Mr. *Iames Corſs* his URANOSCOPIA.

I ngenious ſoul, great ſounds of fame, ſets forth
A name to thee; but far below thy worth.
M y lines may derogate; thy works doe praiſe,
E nough thy skil and pains: for which the bayes
S hall on thy head be ſet; in glorious rayes.

C ontinue then, in this thy aſtrall ſtrain;
O 'r looking what this Orb can give, for gain;
R eſume thy works, in honour of thy Nation:
S o, when thou dies, & hes remov'd thy ſtation
S cotland wil ſay, thou'rt turn'd a conſtelation.

I. Hamilton a lover of the *Mathemat.*

URANOSCOPIA.

CHAPTER I.

Of the Names and Natures of the Signs, Planets and Aſpects.

HE that reſolves to be an ingenious Student, or would attain any knowledge in the Sacred Cœleſtial Sciences of *Aſtronomy* and *Aſtrology*, muſt (firſt) neceſſarily know that there be twelve Signs (in the Zodiack) whoſe Names and Natures are as followeth.

Aries, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, *Libra*, *Scorpio*, *Sagitary*, *Capricorny*, *Aquary* and *Piſces*.

The nature of *Taurus*, *Virgo*, *Capricorny*, is cold and dry, Earthly.

The nature of *Gemini*, *Libra*, *Aquary*, is hot and moiſt, Airy.

The nature of *Aries*, *Leo*, *Sagitary*, is hot and dry, Fiery.

The nature of *Cancer*, *Scorpio*, *Piſces*, is cold and moiſt, Watry.

The twelve ſigns are divided into Moveable, Common, Fixed, Maſculine and Fæminine.

Aries, *Cancer*, *Libra*, are moveable ſigns.

Taurus, *Leo*, *Scorpio*, are fixed ſigns.

Gemini, *Virgo*, *Sagitary*, *Piſces*, are common ſigns.

Maſculine ſigns be *Aries*, *Gemini*, *Leo*, *Libra*, *Sagitary*, *Aquary*.

Fœinine ſigns be *Taurus*, *Cancer*, *Virgo*, *Scorpio*, *Capricorny*, *Piſces*.

Every one of theſe twelve ſigns is ſaid (and found true by experience) to rule certain diſtinct Members of Mans Body, as *Aries* rules the Head, *Taurus* the Neck, *Gemini* the Shoulders, *Cancer* the Breaſt and Ribs, *Leo* the Heart, *Virgo* the Belly and Bowels, *Libra* the Reins, Loyns and Kidneys, *Scorpio* the ſecrets of both Sexes,

(tis

('tis not fitting for me to name them) *Sagitary* the thighs, *Capricorn* the Knees and Hams, and *Piſces* the Feet.

In the twelve ſigns of the Zodiack, are conſtantly moving (according to nature) ſeven Planets, which by reaſon of their different and various motions from that of the 8 Sphere, (in which the fixed Stars move) are called wandring or erant Stars, whoſe Names and Natures are theſe following, viz. *Saturn*, *Jupiter*, *Mars*, *Sol*, *Venus*, *Mercurius*, and the *Moon*.

Of theſe 7 Planets, two (*viz.* the *Sun* and *Moon*) are moſt perſpicuous and univerſally known, by every vulgar eye, but the other five are carefully obſerved (only) by the Sons of Wiſdom, in all ages throughout the earth.

The ſeven Planets are of different Natures, for

Saturn is cold and dry, and hath *Capricorny* and *Aquary* for his houſes.

Jupiter is hot and moiſt, and hath *Sagitary* and *Piſces* for his houſes.

Mars is hot and dry, and hath *Aries* and *Scorpio* for his houſes.

Sol is hot and dry, and hath only *Leo* for his houſe.

Venus is cold and moiſt, and hath *Taurus* and *Libra* for her houſes.

Mercury is convertible in nature, and hath *Gemini* and *Virgo* for his houſe.

Luna is cold and moiſt, and hath only *Cancer* for her houſe.

Theſe ſeven Planets moving in the twelve ſigns, do make ſeveral Angles and mutual Aſpects, from whoſe influence, the generation and corruption of all Sublunaries are cauſed, and they are five eſpecially, whoſe Names, and Natures are theſe following, *viz.*

A *Conjunction* is either good or bad.

A *Sextile* is an aſpect of imperfect friendſhip.

A *Quartile* is imperfect enmity.

A *Trine* ſignifies perfect amity.

A *Oppoſition* ſignifies nothing but miſchief, *&c.*

And thus much ſhall ſerve for the Names and Natures of the Signs, Planets and Aſpects.

CHAP.

CHAP. II.

Of several Terms of Art, necessary for all Students to understand.

BEsides the Names and Natures of the Signs, Planets and Aspects, which I shewed you before, there are some other Terms of Art (used by *Astronomers*) which seem difficult to be understood, unlesse first explained, as Applications, Separations, Prohibitions, Peregrinations, Retrogradations, Combustions, *&c.* of the Planets.

1. The *Aspects* of the Planets are either partile or platique. A partile *Aspect* is when Planets behold one another directly to the same degree and minut, be it either *Sextile*, *Quartile*, *Trine* or *Oppesition*: But a platique *Aspect* is, when Planets are within the mediety of others Orbs, which Orbs are as followeth.

The Orbs of	*Saturn*	are 10 deg. 00 min.
	Jupiter	are 12 deg. 00 min.
	Mars	are 7 deg. 30 min.
	Sol	are 17 deg. 00 min.
	Venus	are 8 deg. 00 min.
	Mercurius	are 7 deg. 00 min.
	Luna	are 12 deg. 00 min.

2. Their's *Application* of Planets, and that 3 wayes.

First, When two Planets (both direct and in motion, and the one a more light and swifter Planet then the other) do apply. As *Mercurius* in 10 deg. of *Aries*, and *Saturn* in 10 deg. of *Gemini*, here *Mercury* (being more swift then *Saturn*) is said to apply to a *Sextile* of him.

Secondly, When both Planets is Retrograde.

Thirdly, when one Planet is direct (in motion) and the other Retrograde, as *Mercury* Retrograde in 10 deg. of *Aries* and *Saturn*, direct in 15 deg. of *Aries*, *Mercury* is said to apply to the *Conjunction* of *Saturn* by Retrogradation.

Here note, that the Superiour Planets (*Saturn*, *Jupiter* and *Mars*) never apply (unlesse Retrograde) to the Inferiours;

Inferiours; but (just as it is amongst men) the Inferiours alwayes apply unto the Superiours. This Cœlestial Oeconomy demonstrates the infinit love of God towards us, who being *Superiorum Altissimus*, should apply himself to us, his sinful creatures, even when we run Retrograde. O wonderful love!

3. *Separation* of Planets is, when two Planets having been united by Body or Aspect, and are separated or departed from each other six minuts at least, continuing their separations, untill they be past the mediety of others Orbs.

4. *Prohibition* of Planets is twofold: First, When two Planets are applying to each other, but before they can come to eithers Body or Aspect, behold another Planet swifter in motion, interposes his Rayes, and so prohibits their Application. Secondly, When a lighter Planet is applying to another (Planet) more ponderous, and before he comes to his Body or Aspect, falls Retrograde, and so is prevented by that Planets refremation.

5. *Translation* of light and nature is, when a light Planet shall separate from a more weighty one, and immediatly shall be joyned to a more ponderous one.

6. *Reception* of Planets is, when they are mutually in others Houses, Exaltations, Triplicities, Terms, or Faces.

7. *Peregrime*, a Planet is said to be Peregrine, when he is out of all his essential dignities.

8. *Frustration* is, when a light Planet would joyn with another more ponderous; but before he can come to the *Conjunction* of him, the ponderous Planet is joyned to another, whereby the *Conjunction* of the first with him is frustrated.

9. *Combustion* is, when a Planet is within 8 degrees, 30 minuts of the Suns Body: here note, that a Planet is more afflicted when he is applying to (then separating from) combustion.

10. *Cazimini*, Planets are said to be in *Cazimini* of (*Cordis Solis*) heart of the *Sun*, until they be separated 17 min. from his Body, all Planets in *Cazimini* are exceedingly fortified.

11. Di

11. *Direction*, Planets are said to be direct in motion, when they move a regular progresse in the Sign they are in, as out of one degree into another, and from that to the third, *&c.*

12. *Retrogradation* is, when Planets move contrary to their wonted order and succession, and goes backward, as out of the eight degree into the seventh, and so to the sixth, *&c.*

13. *Planets* are said to be Stationary, when they move not at all, but stands still in the Heavens.

14. Planets are said to be *Oriental*, when they rise before the Sun, & *Occidental* when they set after the Sun.

15. *Besieging* is, when a Planet is between the Bodies of two other Planets, if the Besiegers be benevolents, its good, otherwise its (almost) as bad as Combustion.

16. Planets are said to be void of Cause, when they are separated from a Planet, and do not apply unto, nor meet with the Body or Aspect of another, during the time they be (and remain) in the Sign wherein they are posited. This accident happens most frequently to the *Moon*, by reason of her first motion, this much shall serve for the Terms of Art, and their Explanations, that every Young Beginner ought to be acquainted with.

CHAP. III.

Of the Systemn of the World, and Motion of the Earth.

THe World (containing all the Visible Creation) is the order and distribution of all things kept and preserved of God, and is vulgarly divided into two parts, *viz.* Heaven and Earth, of which this Excellent Structure is composed. The Center of which Fabrick is held to be the Sun; but their hath been much controversie amongst the most eminent *Mathematicians* concerning the Scituation and Motion of the Sun and the

Earth. *Copernicus* and some of the Ancients, before and since Christ, held the Sun to be immovably fixed in the Center of the Universs, and that it was the Earth (only) that moved: Others again denied, affirming that the Sun moves only, and that the Earth stands still. Both produce their Reasons and Demonstrations to prove it. The Judgement of *Divines* is unanimous, *viz.* that the Earth is immovably fixed, and that its the Sun that moves. But although the Judgement of *Divines* concur in it, yet I am not altogether of their Opinion, that saith it is immoveably fixed in the Center. For the equal (or unequal) distribution of the Universal *Anima Mundi*, alloweth it to have a Life: and consequently Motion (which is the property of Life (and therefore it must be granted, that either their's no such thing, as the Universal *Anima Mundi*: or else if there be that the Earth is exempt of it and so lifeless, to affirm either of which is prodigiously absurd and ridiculous, and contrary to the Judgement of the soundest *Divines*, *Philosophers* and *Mathematicians*. But whether the Earths Motion be Central, Circular, or Equilibral, their's the Question, let them whet their Wits upon it, and they will be the sharper. As for me, I shall satisfie my particular friends concerning the Motion thereof; (for I am confident it hath a Motion, though insensible, by reason of the dis-proportion, which our visual senses have to its vast Magnitude) and the World in general in the next Edition.

But I shall now return to give you an account of the several Spheres of Heaven, in their various Situations and Motions, according to the Opinion, Demonstration, and acurate Observations of that *Noble Danish Lord*, *Tycho Brahe*.

1. That the Earth is the Center of the World, equidistant in all places from the vast Circumference of the fixed Stars.

2. About the Earth is the Sphere of the Moon, which by reason of its Propinquity and Parvity of her Orbe, She compleateth her Periodical Revolution in a Month.

3. The

3. The Sun is the Center of the Planetary Syſtemn, ſo that all the Planets reſpect Him as their common Node and Center, He compleateth His Courſe through the twelve Signs of the Zodiack in a year.

4. The neareſt Planet to the Sun, is the Orbe of *Mercury*, which by reaſon of the Parvity of his Circle and Vicinity to the Sun (his greateſt Elongation not exceeding 28 degrees) therefore he is rarely ſeen, he finiſheth his Revolution in 88 dayes.

5. In the next Sphere moves *Venus*, who accompliſheth her Revolution through the 12 Signs of the Zodiack in 225 dayes.

6. The next Sphere above the Orbe of the Sun, is the Orbe of *Mars*, which Interſects the Suns Orbe twice, he compleateth his Revolution once in two years.

7. The next Sphere above the Orbe of *Mars*, is *Jupiter*, he finiſheth his Revolution in 12 years.

8. The higheſt of all the Planetary Spheres, is the Sphere of *Saturn*, who by reaſon of his great Remotion from the Earth, and Center of the Univerſs, compleats his Revolution but once in 30 years.

9. And laſtly, Above the Sphere of *Saturn*, is the Immenſe Orbe of the Firmament, wherein all the fixed Stars are placed, which compleateth its Revolution in 25920. years.

Having now ſpoken of the Cœleſtial *Oeconomy* of the Planetarie Spheres, even from the Center to the vaſt Circumference, I am drowned in a Sea of Admiration and Contemplation, to behold, and ſeriouſly conſider (with a Secret ſacred delight) the Proportion, Scituation, Magnitude, Tranſcendant Glory and Luſter, Stupendious and Conſtant Order of the Viſible Cœleſtial Hoſts of Almighty God, *Cujus Centrum eſt ubique, Circumferentia nullubi.* I can never behold and contemplate them ſooner, then my Heart and Soul is lifted above the Heavens, by the raviſhing ſight of JEHOVAHS back parts, which conducts me thither by Inviſible Lines, and Immortal Beams, am led in to the moſt Holy Place, where the KING in His Beauty, the ANGIENT

of DAYES ſits upon His Throne, attended by Infinit Millions of Saints and Angels (whoſe Glory obſcures the Viſible Sun) ſounding everlaſting Anthems to the *Primum ens*. The firſt beginning and ultimate end of all Created Beings, The Supreme UNITY of all Perfections. I ſay, when I conſider theſe things, my ſouls joy Initiats.

O my dear God, comfort my ſoul and heart with thy Immortal Rayes, and ſtrengthen the underſtanding of thy ſervant with a Light of Glory, that may enable me to bear thy Beatifical Viſions. For I am raviſhed in Contemplation of thy Glorious Works of Creation.

CHAP. IV.

Of the Eclipſes of the Sun and Moon.

AS there is no part of the Mathematicks ſo Noble and Excellent as Aſtronomy: So there is no part of Aſtronomy ſo difficult as the Doctrine of the Eclipſes (eſpecially when the Calculation of Solar Eclipſes is limited and determined to a certain Longitude and Latitude) in regard of the tedious Computation of the Moons Paralaxes in Longitude and Latitude (upon which the Solar Eclipſe principally depends. This Peece of Learning is the very Superſtructure and Punctilio of Aſtronomy: and ſo rare is it to be found amongſt men, that not one of 20000. hath attain'd to it, it is the very Crown and higheſt Pitch (and may juſtly Challenge to it ſelf the Soveraignty and Precedency) of all Humane Learning whatſoever. 'Tis not only Speculative (for the Ignorant) ad Contemplative (for the Ingenions) but alſo Predictive (becauſe it tells us as well what Eclipſes is paſt, as what's to come) In ſo much, that an Aſtronomer is rather an Angel, then a man, and (at leaſt) a Prophet in the Superlative Degree. Is there any Art or Science under Heaven (except Aſtronomy) that can tell me, Whether there

there will be any Eclipſes of the Luminaries in *March*, *Anno Chriſti*, 1990. Or (I might have ſaid) 5670? (Preſuppoſing the World ſhall continue ſo long) Can either Philoſophy, Phyſick, or Logick do't? No it's impoſſible, and yet an Aſtronomer will reſolve the Queſtion within one quarter of an hour, almoſt, *Ex tempore*. And is not this a rare Art, and Worthy to be Encouraged, but the blind World knows little the Sublimity of the Mathematicks. And hence it is that they alwayes bewray their own Ignorance, by proportioning their Encouragement accordingly. But to return,

1. Eclipſes of the Luminaries are (vulgarly accounted) twofold, *viz.* Solar and Lunar. The Solar Eclipſe is cauſed by the Interpoſition of the Moon, between the Sun and the Earth, whereby ſome particular Tract of the Earth is deprived of the Suns Light, during the Eclipſe, at which time other places of the World, have the full light of the Sun. The Lunar Eclipſe is cauſed by the Interpoſition of the Earth, between the Sun and Moon: ſo that the ſhaddow of the Earth falls directly upon the Moon, and thence comes the obſcurity.

2. Eclipſes of the Sun are alwayes happening at the Change of the Moon, and Eclipſes of the Moon happen at the full Moon.

3. The Magnitude of every Eclipſe depends upon the Propinquity of the Moon to the Ecliptick Dragons Head or Tail.

4. When the new Moon is Central, and falls exactly in either of the Nods, the full Moon next preceeding and ſucceeding, do alwayes paſſe without an Eclipſe.

5. When there be two Central new Moons, the one before the Suns Apogæon, the other after, there ſhall happen no full Moon Eclipſe that year.

6. When there are two full Moons in ſix Months ſpace, in, or near the Ecliptick Line, it uſually falls out, that there will be no Eclipſes of the Sun that year, or at leaſtwiſe, they cannot be of any ſenſible Magnitude, neither be viſible in any part of the World, but only near the Poles.

7. Eclipſes

7. Eclipſes of the Moon are Univerſal, appearing in all places (where it's viſible) of a like Quantity and Duration, differing only in Time, according to the Meridian of the place.

8. A Reduction for the difference of Meridians, will give the time of the appearance of a Lunar Eclipſe, to any determinate place of the Earth.

9. At the mean time of the full Moon, if the midle Longitude of the Moon ſhall be different from the Dragons Head or Tail, leaſt then 15 deg. 12 min. either according or contrary to the ſucceſſion of Signs, then that full Moon will be eclipſed, but if more ſhe will not.

10. Eclipſes of the Sun is different in every Climate, ſo as they neither retain the ſame Time, Quantity nor Duration in all places alike, and therefore admits not of any Reduction.

11. Eclipſes of the Sun will only agree to that determinate place of the Earth, for which they are calculated to a certain Longitude and Latitude, becauſe of the Moons Vicinity to the Earth, and ſudden changes of her Paralaxes in Longitude and Latitude.

12. The Conical Shaddow of the Earth, terminating in a Point (in a Lunar Eclipſe) is augmented or diminiſhed, according to the Suns Propinquity to, or Remotion from the Earth.

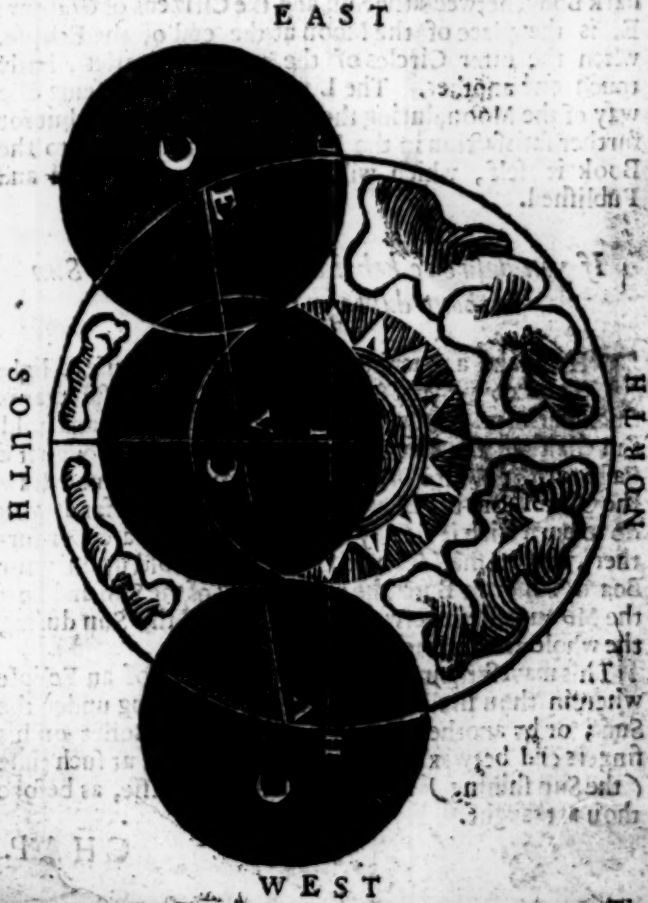
13. At the mean time of a new Moon, if the midle motion of the Moons Latitude ſhall be diſtant from the Dragons Head leſſe then 20 deg. 40 min. or from the Dragons Tail, leſſe then a 11 deg. 22 min. then the Sun will be eclipſed of that Conjunction, but if more he cannot.

Laſtly, Eclipſes of the Luminaries, forwarns this ſinfull World of Drought, Inundation of Waters, Wars, Plagues and Peſtilences, Famine, and the Viſiſitude of all Sublunaries.

I have compoſed an Almanack for ſeven years to come, initiating *Anno Chriſti*, 1663. terminating 1669. Not a Tranſcript, but a Calculation *de novo*, for the Meridian of the moſt famous City of *Glaſgow*. Whither or no I have had great pains in its Calculation, either in the

Eclipſes

Eclipſes of the Luminaries, or Monthly Lunations, he (only) ſhall know that ſhall attempt, to do the like. I have Typified all the Eclipſes that wil be Viſible in Great Britain, during theſe ſeven years, the greateſt Eclipſe of the Sun that happens within the time (aforeſaid) is upon *May* the 15 day, 1668. The Type whereof as it will appear in the Heavens, in the Meridian of the City of *Glaſgow*, take as followeth.



The

The Explanation of the Figure is this, H, I, L, represenreth the Ecliptique, wherein the Sun continually moves, I, is the Center of the Sun, A, the Center of the Moon at the beginning of the Eclipse, V, is her Center and true Place at the Visible Conjunction: At which time so much of the dark Body of the Moon as covereth the Sun in this Figure: so much of the Suns Body in the Heavens will be covered by the Inrerposition of the Moons dark Body, between the Sun and the Citizens of *Glasgow*: E, is the place of the Moon at the end of the Eclipse, when the utter Circles of the two Luminaries, lastly touch one another. The Line, A, V E, represents the way of the Moon, during the time of the Eclipse; but for further satisfaction in the Premises, I refer you to the Book it self, which will be ere long Printed and Published.

If you desire to behold an Eclipse of the Sun without damage to the Eyes,

Then take a Burning-glasse, such as men use to light Tobacco with the Sun; or a Spectacle-glasse that is thick in the midle, such as is for the eldest sight, and hold this Glasse in the Sun as if you would burn through it a Pastboard or White paper-book, or such like; and draw the Glasse from the Board or Book, twice so far as you do to burn with it: so by direct holding it nearer or further, as you shall see best, you may behold upon your Board, Paper, or Book, the round body of the Sun, and how the Moon passeth between the Glasse and the Sun during the whole time of the Eclipse.

This mayest thou practise before the time of an Eclipse wherein thou shalt discern any Cloud passing under the Sun; or by another putting or holding a Bullet on his fingers end betwixt the Sun and the Glasse at such time (the Sun shining) as thou holdest the Glasse, as before thou art taught.

CHAP.

CHAP. V.

To find how long the Effects of an Eclipse continues, and when they begin and end.

Quot horas durat Eclipsis Solaris tot annorum durabitis, effectus pronunciat: Quot horas durat Lunaris ut mensem. How many hours the Sun is Eclipsed, so many years will the effects continue, but if it be a Lunar Eclipse, so many Months.

Now to find the time when the effects of some Eclipse begins and ends, observe if the Eclipse falls in the Eastern Horizon, the effects thereof will manifest themselves, about the next four Months following the Eclipse, and will more strongly operate in the first third part of its whole Duration —— But if it fall in the Mid-heaven, the Events thereof will begin to appear in the 4th Moneth next following, but most apparent will the effects be in the middle most third part of its whole Duration. —— But if it happen in the West part of the Horizon, the effects shall not begin untill about the last four Moneths, and its greatest Operation will be in the last third part of its whole Duration.

Therefore we are to observe at the midle of the Eclipse, how far the Luminary eclipsed is distant from the rising, and how long it continueth above the Horizon: which known, reduce them into minuts (for facility of Operation) and then say by the Golden Rule —— if the time of the whole continuance of the Luminary eclipsed above the Horizon, give 365 dayes (or a whole year) What shall the time of the rising give? Multiply and Divide, and the Quotient will yeeld your desire.

As for example, in the Eclipse of the Moon that is to happen the 27 of *July* 1664. (in the Meridian of the Honourable and Famous City of *Glasgow*) at 11 hours, 12 min. 12 seconds. The Moons Nocturnal Arch is 8 hours, 30 min. reduced into minuts is 510.

The

The Sun ſets (in the Latitude of 56 deg.) at 45 min. paſt 7. which in this caſe may ſerve for the time of the Moons riſing: ſo that the diſtance of the Moon at the greateſt Obſcuration, is 3 hours, 37 min. which reduced (as aforeſaid) into minuts, is 217.

Now 365 (the dayes in a Common Year) multiplied by 217. the product 79205. divided by 510. the Quotient is 155. 31—102. Or you may perform the Operation with more facility and greater expedition by the *Logarithmes*, which was firſt invented by the thrice noble and Illiſtruous Lord, viz. *John Lord Nepper, Barron of Marchiſton, &c.* in *Scotland*, whoſe Name and Fame will never Terminate, until the general Diſſolution.

The Operations, by his *Lagarithmes*, is this,

	Logarith.
Length of the night, 8 h. 30 m. or 510 m.	2, 707570
The Common Year hath 365 dayes.	2, 562293
Diſtance of the greateſt obſcuration, 3 h. 37 m. or 217 m.	2, 336459
	4, 898752
Dayes or the Effects begin. 155.	2, 161182

And ſo many dayes it will be, before the Effects begin to operate, and therefore from the day of the Eclipſe, (*viz.* the 27 of *July*, 1664.) I number 155 dayes, and it points out the 29. of *December* following, on which day the Eclipſe begins to Operate. And becauſe the Duration of the ſaids Eclipſe is 4 h. 1 m. 8 ſ. (according to my Doctrine of Eclipſes) therefore the Effects will laſt 4 Months, from the 29 of *December* 1664. as aforeſaid.

Moreover, *Ptolomy* ſaith, that how many hours the Sun is diſtant from the Horoſcope (or aſcendant, all's one) at the time of his Eclipſe, ſo many years will it be ere the Effects begin to Operate: ſo that if the Eclipſe be in or near the Weſt Angle, it may be 12 whole years, before the Effects take place: But I rather conſent to *Origanus*, who ſaith, they Inchoate at the very day of the Eclipſe. *Conſentem namque eſt Eclipſes ſtatim operari, & effectus ſuos aliquaſque extendere. Orig. par. 3. cap. 2. de effectibus.*

Thus

Thus having ſhown you how to find the time of the beginning and ending of the Effects of the Eclipſes and time of continuance, I come next to ſhew in what Kingdoms and Countreys the Effects will principally manifeſt themſelves.

CHAP. VI.

The Names of the Regions, Cities and Towns, ſubject to the Signs and Planets.

THe Effects of Eclipſes are moſt felt in thoſe Regions and places that are under the eclipſed Sign, and in ſuch places where they are viſible, *Nil nocet Eclipſis illis Regionibus, in quibus non videtur*: They operate more efficaciouſly in ſuch places where they are Vertical, or where the chief Significator ſhall paſſe by their Zenith in the time of the Eclipſe. As alſo upon thoſe men whoſe Nativities agreeth with the Eclipſe, that is to ſay, upon them in whoſe Nativity or Revolution have the place of the Horoſcope (Some ignorant fantaſtick fools cannot indure this word *Horoſcope*) becauſe it's above the reach of their capacities; for their ignorance ourweighs their Wits, as much as a Milſtone a Feather: They hate all they underſtand not, *&c.* Therefore they may call it (if they pleaſe) the Aſcendant, for all's one) Sun, Moon, part of Fortune, and other Planets in, or about the degree of the Eclipſe, or in *Quartile*, or *Oppoſition* thereof. Eſpecially if there be any Malevolent Direction concuring therewith. But to return,

Under *Aries* and *Mars* are theſe Regions.

England, France, Germany, Swevia, Sileſia the higher, Polonia the leſſe, Denmark, Syria, Paleſtina, and of Cities and Towns, Naples and Comia, Capua, Ferara, Florence, Verona, Lindavia, Rajectum, Padua, Brunſwick, Cracovia, Vincentium.

Under

Under *Taurus* and *Venus*,

Ruſſia, Polonia the Great, Ireland, Lorain, Campania, Helvetia, Rheria, Franconia, Farthea, Perſia, the Iſlands of Syclades, Cyprus and the Sea Towns of Aſia the leſs; of Cities and Towns, Bononia, Sena, Mantua, Tarentum, Sicilie, Parma, Brixia, Tigor, Lacern, Nantz, Lipſig, Poſnania, Gueſna.

Under *Gemini* and *Mercuri*,

Sardinia, part of Lombardie, Flanders, Brabant, the Dukedome of Wertemberge, Hercania, Armenia, Serenaica, and Egypt the lower; of Cities and Towns, London, Corduba, Turinum, Vercelas, Lovain, Bruges in Flanders, Moguntia, Bamberge, Norrinberge.

Under *Cancer* and the *Moon*,

Scotland, Granado, Burgundia, the lower Holland, Zealand, Ruſſia, Numidia, Africa, Bythinia, Phrygia, Colchiſh, Carthage; of Cities and Towns, Conſtantinople, Tunnis, Venice, Genoa, Luce, Piſa, Millain, Vinſcentia, Bern, York, St. Andrews, Lubeck, Magdeberg, Wittenberg, Gorlick.

Under *Leo* and the *Sun*.

Gallia, Togata, the Alps, Italy, Sicily, Apuliæ, Bohemia, a part of Turkie, Phenicia, Caldea; and of Cities and Towns, Damaſcus, Syrabuſa, Rome, Ravena, Cremona, Ulms, Confluens, Pragu, Lintz, Cremiſum.

Under *Virgo* and *Mercuri*,

Achaja, Greece, Crete, Corinthia, Arthefina, a part of Galia, Comara a part of the Rhyne, Sileſiia the lower, Meſopotamia, Babylon, Aſſyria; and of Cities and Towns, Jeruſalem, Corinth, Novaria, Brunduſium, Papis, Tholos, Lyons, Paris, Baſil, Heidlberg, Erphord, Uratiſlavia.

Under *Libra* and *Venus*,

Auſtria, Alſatia, Livonia, Sabodia, Delphinate, Thuſcia, Bactriana, Caſpia, Thebys, Togloditica; and of Cities and Towns, Liſborn, Arles, Cajeta, Lauda, Laſcentina, Friburg, Argentina, Spires, Frankford upon Mœne, Hallinſwevia, Heilbrune, Phryſinga, Moſbachum, Vyena in Auſtria, Antwarp.

Under

Under *Scorpia* and *Mars*.

Norway the higher, Bavaria, Comagena, Capadocia, Edumea, Mauritania, Catholinia, the Kingdom of Feſs, Getulia; and of Cities and Towns, Algeirs, Valens, Trapezunt, Urbinum, Acquilia, Piſtorium, Terviſtum, Forum-Julium, Meſſana, Vienna in France, Monachium, Franckford upon Odar.

Under *Sagitary* and *Jupiter*.

Spain, Dalmatia, Slavonia, Hungary, Marravia, Miſnia, Seltica, Arabia the happy; of Cities and Towns, Toletum, Voba-Terras, Mutinum, Narbone, Avenion, Colonia, Aggrippina, Slagarde, Buda.

Under *Capricorn* and *Saturn*,

Macedonia, Ilyrus, Thraria, Albania, Bulgaria, part of Greece, Muſovia, Lituania, Saxania, Haſcia, Thuringia, Stiria, India, and the Iſlands of Arcadias; and of Cities and Towns, Oxford, Juliacum, Clivia, Berges, Mechlin, Gaunt, Vilna, Brandeburge, Auguſta, Vindel, Conſtance, Fervence.

Under *Aquary* and *Saturn*.

Amazania, Samaria, Great Tartaria, Valachia, Muſcovia, the ſouth-part of Swedland, Weſtphalia, Moſel, Piemont, part of Bavaria, Ethiopia, Sogdiana, Media, Arabia the Deſart; of Cities and Towns, Hamburg, Breme, Monſferat, Piſaurum, Trentim, Golſtead.

Under *Piſces* and *Jupiter*,

Cilicia, Calabria, Portugal, Galitia, Normandi, Garomantes, Lydia, Pamphilia, Egypt the higher; of Cities and Towns, Alexandria, Hiſpalis, Compoſtella, Worms, Ratiſbon, Tevertoun.

CHAP. VII.

To Prognoſticate the Natural Portents of Eclipſes.

FIrſt erect your ſcheme exactly to the time of the midle (or greateſt obſcuration) of the Eclipſe, then conſider

conſider diligently what Planet is Lord of that Eclipſe, by colecting the eſſential Dignities and Debilities of the Planets from the aſcendant, *Medium Cœli*, and place deficient, &c. And ſeeing experience in all ages teſtifieth that Eclipſes of the Luminaries hath been attended with ſome notable events, and ſequels, as not only Hiſtories, but even our Times do teſtifie. I ſhall therefore inſert a few Aphoriſmes (built upon Experience) by which the natural portents of Eclipſes may be foretold.

1. If *Saturn* ſhall happen to be Lord of an Eclipſe, he portends much evil, Corruption proceeding from cold, tedious diſeaſes, Conſumptions, Feavers, Dropſies, Fears, Exiles, &c. and in the Air he engenders thick pitchy Clouds, Snow, Shipwracks, ſcarcity of Fruit, Penury, damage by Locuſts, Hail and violent Storms.

2. If *Jupiter* be Lord of an Eclipſe, he cauſes things to encreaſe, giveth good things, and is the general ſignifier of Peace and Tranquility, when he alone beareth principal rule, &c.

3. If *Mars* be Lord of an Eclipſe, he preſageth Wars, Tumults, Diſſentions, Violence, Injury, great Heat, Tempeſts, Lightning and Dryneſſe; he brings upon men Impriſonments, Captivities, threatens Depopulations and Slaughters of men, beſides many ſore and grievous Diſeaſes, and much evil in general.

4. If *Venus* be principal ruler of an Eclipſe, it ſignifieth much good to enſue, and promiſeth a delicate and temperate ſeaſon, &c.

5. If *Mercury* be Lord of an Eclipſe, he doth inſinuate himſelf into the nature of that Planet he is joyned with, or aſpected to: Of his own nature, he portends dry Diſeaſes, Coughs, Quotidian Feavers, he ſignifieth Roberies and Pyratical Invaſions, he moveth turbulent Winds, brings Dryneſſe, Thunders, Lightning, and hurts the Fruits of the Earth.

6. In prognoſticating the effects of the Eclipſes, the Aſteriſm in which the Eclipſe happeneth, is to be warily obſerved: For if it ſhall repreſent the form of men, then the influence will fall chiefly upon men; if of four

four footed beasts, upon four footed beasts; if Serpents, upon Serpents.

7. If there happen an Eclipse (especially of the Sun) and *Mars* be the principal ruler thereof, and posited in a fiery or airy sign, *Mars* being strong and Lord of the year; It threatens House burnings.

8. If *Saturn* be Lord of the place Eclipsed, and be strong in earthly or watry Signes, *Mars* being joyned to Stars of *Saturns* nature, or if he be in Conjunction, Quartile, or Opposition to *Saturn*, it portends an Earthquake, and Inundations.

9. In Prognosticating the effects of the Eclipses, you are to observe in what House of Heaven the Luminarie Eclipsed (or the Eclipse it self) happens in, for the influence of that Eclipse will most strongly operate upon those men and things signified by that House.

10. *Fiunt in mundo multa in commoda quando erit in una mense utriusque Luminaris Eclipsis, & præcipue in his locis quibus est significatio eorum Speciales.* Herms. *Centiloquium* 53.

And thus much shall serve for judging the effects of the Eclipses for any time coming. I come next to demonstrate how,

CHAP. VIII.

To finde the Lords of the Year, and four Quarters thereof.

THe best way as *Origanus* saith, is to erect three Figures for every Quarter. viz. one for the *Conjunction* or *Opposition* of the Luminaries preceeding the Ingresse, the next for the Ingresse it self, and the third for the *Conjunction* or *Opposition* succeeding it, notwithstanding *Haly* himself was of another opinion as appears, *Lib.* 8. *cap.* 3. *de Jud.* Astrorum (to whom *Guido* assents, *part.* 4. *cap.* 24.) *Quando introitu Solis in arietem fuerit ascendans*

dans ſignum fixum continet enim illa Revolution, in ſomenes quartas illius anni & ſic qui fuerit tunc Dominus *omni, erit* Dominus *totius anni, & totius Revolutionis illius, ſed ſi fuerit aſcendens ſignum Commune, non durabit illa Revolutio, niſi uſque ad introitum Sol in Libram, tunc oportebit te reiterare Revolutionem*, &c. When at the Suns ingreſſe into *Aries*, if the Sign aſcending ſhall be a fixed Sign, that *Revolution* comprehends in it ſelf, all the four Quarters of that year, and ſo he that ſhall (then) be found Lord, ſhall be Lord of the whole year, and of that whole Revolution, &c. but I rather adhere to *Ptolomy, lib. 2. Quadr. cap.* 10. who adviſeth us to erect Schems of the four Quarters, and of the preceeding *Conjunction* and *Oppoſition* of the Luminaries, and ſo raiſe a judgement of the ſtate and condition of the year; I my ſelf do alwayes follow this Direction: For I erect four Figures for the ingreſſe of the Sun into the cardinal Signs, *Aries*, *Cancer*, *Libra*, *Capricorny*, and to the time of the Lunations preceeding and ſucceeding the Suns ingreſſe into theſe Signs; and ſo I collect the eſſentiall Debilities and Dignities of the Planets from the Horoſcope *Medium Cœli*, and places of the Luminaries. Laſtly, that Planet which I find to excell in teſtimonies of Fortitude, I conclude him chief Almuten and Ruler of that Revolution.

In like manner I find out the Lord of an Eclipſe, by collecting the eſſential Dignities and Debilities from the Horoſcope, *Medium Cœli*, and place deficient.

CHAP. IX.

Of the ſignification of the twelve Cœleſtiall Houſes.

THere are four principal parts of the *Zodiack*, two of which fall equally upon the Horizon, and the other two upon the Meridian, theſe are called Cardina

Points

Points, or Angles of the Figure, viz. The aſcendant *Medium Cœli*, the Angle of the Weſt, and *Imum Cœli*; thoſe Houſes that next follow theſe Angles be the ſecond, fifth, eighth, and eleventh, and are called Succedents. The third, ſixt, fourth, and twelfth are called Cadents, and does preceed the four Angles.

The firſt Houſe hath proper ſignification of any Natives Life, Stature, Form, Shape, Viſage, Temperature, Complexion and Colour, and is called the Horoſcope, Aſcendant, or Angle Orient.

The ſecond Houſe; of Eſtate, Goods moveable or immoveable, and is called of the Greeks *Anaphora*, from the continual Aſcenſions of the Planets (there) to the Eaſt.

The third Houſe; of Brethren, Siſters, Kindred, Neighbours, Removals, or in land Journeys, Epiſtles, Letters, &c.

The fourth Houſe; Lands, Houſes, Tenements, Inheritances, Patrimony, the natives Father, &c. its called *Imum Cœli.*

The fifth Houſe, Children, their condition and qualities, Delights, Muſick, Mirth, Banquetings, Playes and Games, Meſſengers, Ambaſſadors, the fathers ſubſtance, &c.

The ſixth Houſe, of all manner of Diſeaſes that our frail Nature is ſubject to, their Quality and Cauſe, Curability and Incurability, Servants, ſmal Beaſts.

The ſeventh Houſe, of Marriage, Law-ſuits, Publick Enemies, Conteſts, Duels, Controverſies, Partnerſhip, &c.

The eighth Houſe, of Death, Goods of dead Men, Legacies, Wills, Womens Dowries, *Nulla diviſio circuli tunc peſſima tamque crudelis in omnibus quam octava eſt.*

The ninth Houſe, of Religion, long Journeys, Dreams, Viſions of all Arts and Sciences, the Wifes Kindred, Church-men and Lawyers, all Ingenious men whatſoever.

The tenth Houſe of Preferment, Office, Honour, Renown, Vocation, or Trade the Mother, *&c.* It's called

Medium Cœli, or *Cor Cœli*, the mid Heaven, or Heart of Heaven.

The eleventh House of Friends, Favourites and Counsellours, it's called *Bonus Genius*, or good *Dæmon*, Angel or Spirit.

The twelfth House of Imprisonments, Captivities, Banishments, Private Enemies, great Cattel, as Oxen, Horse, &c.

And this much shall serve for the general signification of the twelve Houses, which is more briefly comprehended in these few Verses.

Prima domus, vitam largitur, & altera nummos,
Tertia dat fratres, Venerandos quarta Parentes,
Prolem quinta dabit. Morbos *tibi sexta minatur,*
Septima conjugii domus est, octavaque Mortis,
Religio sequitur, confert tibi decima honores,
Hinc tibi amicus erit, postremam inimicus habebit.

Or more briefly thus,

Vita, Lucrum, Fratres, Genitor, Nati, Valetudo,
Uxor, Mors *Pietas, Regnum, Benefactaque, Carcer.*

CHAP. X.

Of the Distances, Magnitudes and Colours of the seven Planets.

THere hath been much controversie amongst the eminent Mathematicians, concerning the Planets just Magnitude and Distance, the very Dimensions of *Tycho* and *Lansberge* are much contraverted, and I think not without cause; for it's certain, that the Circumradiancy of the Planets glittering Beams, makes them appear to the eye, much bigger then they (truely) are, as appears by the Telescope, which you may experiment at pleasure, by pricking a little hole in a peece of Paper or Pastboord with the point of a Pin on Needle: and then through that narrow passage, if you observe the

Planets

Planets and Stars on ſome clear nights, you will ſoon find how much they looſe of their borrowed luſtre.

But I return, The Diſtances, Magnitudes and Colours of the ſeven Planets, according to the Dimenſions conſtitute and built upon the acurate Obſervations of the Ancient and beſt Modern Aſtronomers, be as followeth.

The Moon, when ſhe is furtheſt diſtant from the earth, is removed 4229 parts, and when neareſt the earth, is 3879. Her apparent Semidiamiter (when ſhe is Apogæon) is 15 min. 21 ſeconds, ſhe is 48 times leſſe then the earth, her colours and ſeveral ſhapes are ſo vulgarly known and obſerved, that I need not deſcribe them.

2. *Mercuries* greateſt remotion from the earth, is 146764 parts, his neareſt diſtance is 53236 parts, his apparent Semidiamiter is 10 ſeconds, he (for I may call him either Maſculine or Feminine without any diſparagement to his perſon) is 2800 times leſſe then the earth, by reaſon of the parvity of his Orbe: He is ſeldome ſeen, and when he is, he appears a Star of duſky Silver colour.

3. *Venus* when ſhe is furtheſt from the earth, is diſtant 172937 parts, her leaſt diſtance is 27063. Her apparent Semidiamiter is 26 ſeconds and a half, ſhe is 157 times leſſe then the earth: ſhe appears a Star of a great and bright glory, inſomuch, that when ſhe is neareſt the earth, and furtheſt Elongate from the Sun, I have ſeen thouſands of men in *Edinburgh* (when they beheld her magnitude) admire her as ſome ſtrange Apparition or Blazing Star: So ignorant were they, that not one of a 1000 could deſcribe her. Oh profound ignorance in Cœleſtial Sciences!

4. The *Sun* when he is neareſt the earth (which is about the 19 of *December*) is diſtant from it 101798 parts, and when furtheſt from the earth (which is about the 17 day of *June*) is 98222. His apparent Semidiamiter (when *Aphelion*) is 16 min. 28 ſeconds, he is 333 times greater then the earth, his colour is ſo wel known, that he that cannot ſee it, will not ſee to read it, though I ſhould deſcribe it.

5. *Mars* his greateſt diſtance from the earth, is 266435 parts, his leaſt diſtance 66435. His apparent Semidiamiter is 18 ſeconds, he is 150 times leſſe then the earth, and appears a Star of a fiery red, ſparkling, glowing colour.

6. *Jupiter* his great diſtance from the earth, is 644644 parts, his leaſt diſtance is 444644. His aparent Semidiamiter is 25 ſeconds, he is leſſe then the earth once and a quarter, and appears a Star of a clear, bright, azure colour.

7. *Saturn* his greateſt diſtance from the earth, is 1108090 parts, his leaſt diſtance 908090. His apparent Semidiamiter is 18 ſeconds and a half, and appears (to our ſight) a Star of a leaden, ſwarthy and pale colour.

Being now arrived at the higheſt of all the Planets, I am now at a ſtand, to behold the vaſt and immenſe diſtance of the fixed Stars: And while I am thinking upon it, there comes to my remembrance the words of our bleſſed Saviour, viz. *In my Fathers houſe are many manſions.* O Lord, it is moſt true; but if thou haſt created ſo many Millions of viſible Manſions, in theſe thy viſible, and (as to us) inferiour Spheres: What infinit Millions, millions, millions of inviſible Manſions is there in thoſe inviſible and ſuperiour Spheres, which are comprehended by thy glorious Angels, and they again comprehended by thy Majeſty!

Now, if (at any time) ye be deſirous to know the diſtances of theſe ſeven Planets from the earth, in Miles, ſay by the Golden Rule, if 68 and a half give 3436 *Italian Scottiſh* Miles: What ſhall the diſtance of the Planet from the earth in parts give? Multiply and Divide, and the *Quotus* will be your anſwer. But becauſe I would have you to underſtand the Premiſes, I ſhall therefore add an Example or two for Illuſtration.

Suppoſe it were required to know the diſtance of the Moon from the Earth when ſhe is in her *Aphelion*, (or greateſt remotion from the earth) her diſtance being 4229 parts. I ſay, if 68 and a half give 3436 miles, what ſha

ſhall 4229 give? Multiply the ſecond Number by the third, the Product divide by the firſt, the Quotient is 212129. and ſo many Miles is the Moon diſtant from the earth when ſhe is in her *Aphelion*.

I ſhall add another Example: The leaſt diſtance of the Sun from the Earth, is 98222. Now to know how many Miles this is, I ſay, (as before) if 68 and half give 5436 Miles: What ſhall 98222 give? Multiply and Divide, and the *Quotient* is 4926872. and ſo many Miles is the Sun diſtant from the Earth when he is neareſt.

In like manner, you may calculate the diſtances of the reſt of the Planets from the earth, either at their neareſt Vicinity or greateſt Remotion, according as I have ſhown you in theſe two Examples.

If you would know the Diameters of the ſeven Planetary Orbs in Miles alſo, you muſt firſt know, that their particular Semidiamiters (in ſuch parts as aforeſaid) be as followeth.

Saturn 952500.	*Jupiter* 519500.
Mars 152040.	*Sun* 100000.
Venus 72405.	*Mercury* 38240.
Moon 4047.	

Now, If you double the Planets Semidiameters, the Product is their Diameters, which multiplied by 22 and the Product divided by 7. the *Quotient* will ſhow you their particular Circumferences (in ſuch parts as their Diameters is) which known, you may eaſily compute the Miles contained in the Circles of their ſeveral Orbs.

As for Example, The Semidiamiter of the Moons Orb, is 4047. which doubled, is 8094 the Diameter, which multiplied by 22. the Product 178068 divided by 7. the *Quotus* 25438 is the parts contained in the Circumference of the Moons Orb.

Now if you would know what Miles thoſe parts will give, ſay, if 68 and a half give 3436. What ſhall 25438 give? Multiplie and Divide, and the *Quotient* will be 1275984 for the Miles contained in the Circle of the Moons Orb. Thus having found the Circumference and Diameter of the Circle in Miles, you may eaſily find the

Convex

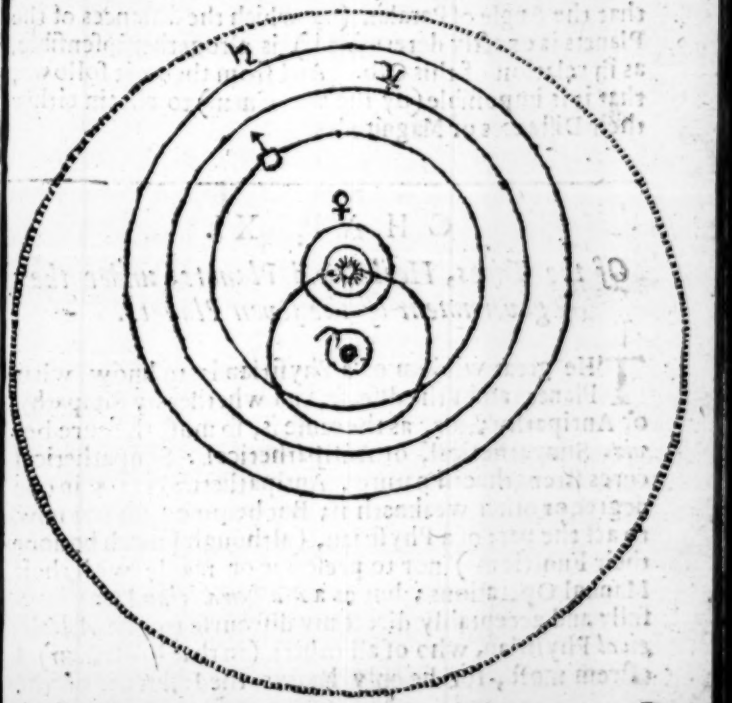
Convex Superficies thereof, by multiplying the one by the other, the Product will be 518048228016 Miles, for the Superficies of the Moons Orb, a vaſt ſum indeed; yea, 'tis ſo much, that all the men and women that ever yet breathed, if they were aſſigned to dwell in the ſaids Orb, ſhould have more for their particular Manſions, then the limits of a Kingdom. O wonderful magnitude! But if there be ſuch regal manſions in the Mons Orb, which is but the leaſt and loweſt: What ſuper-infinit Manſions muſt there be in the reſt of the higher and greater Orbs of the other Planets? O what joy is it to contemplate the raviſhing Magnitudes and Motions of the Glorious Heavenly Hoſts of Almighty God!

To the end that ye may better conceive the Order, Scituations and Various Diſtances of the ſeveral Cœleſtial Spheres, I ſhall here add the Type of the Syſtemn of the Viſible World, according to the Opinion and Conſtitution, Ratified and Confirmed by the acurate Obſervations of that Noble Daniſh Lord, *Tycho Brahe*.

In this annexed Figure, you may behold as in a Glaſs how excellently great JEHOVAH hath made the Frame and Machina of this Viſible World: What a wonderful Oeconomy, Proportion and Cœleſtial Harmony is there to be ſeen and heard in this admired and moſt excellent Fabrick! O man! ſet thy foot upon earth (it doth ſo by nature to teach thee not to ſet thy heart upon it) and lift up thine eyes, and behold the Glorious Hoſts of the moſt High and Almighty TETRAGRAMATON, and Adore with Admiration this Grand ARCHITAS, who hath made all his wondrous works in Number, Weight and Meaſure! O how admirably hath he made the Creation of the Univerſs, ſubordinate and inferiour one part to another. Heaven is a work on which he beſtoweth much coſt & ſkill, to make a Throne for himſelf! The earth is a cheaper and courſer peece of work, for a footſtool! Hell is his ſtrange work! A work, in which he enſtrangeth himſelf from himſelf! In which he goeth to the vaſteſt diſtance, to bring forth a work moſt unlike himſelf! In which he hides

hides the workman in the horrour of the work, and ſhewes him by hiding him ſo deep! All things created are in their great Creator, Eminently, *Pſal.* 139. 12. The night ſhineth, as the day; the darkneſſe, and the light are both alike to thee! Darkneſſe, and light, are both in GOD! Not only repreſentatively, but really! Not in their Ideas only, but their Indentities! Yet not materially, nor formally, but eminently! After a more perfect manner then they are in themſelves! As in the Supreme UNITY of all perfections!

I have dig eſſed a little, but I ſhall preſently wheel into the Road again. The Type of the Mundane Syſtemn according to the opinion of *Tycho Brahe*, is as followeth.



In

In this Figure, the uttermoſt Great Pricked Circle repreſents the Firmament (or eighth Sphere whein all the fixed Stars move) The Center whereof is the Earth. Here you ſee that all the Planets (except the Moon) regard the Sun for their common Node and Center. And that *Saturn* in oppoſition to the Sun, is nearer the earth then *Venus* in *Apogeon*. And that *Mars* in oppoſition, Is nearer then the Sun himſelf. You may alſo perceive (in this Diagram) a Demonſtration of the Planets various diſtances from the earth. Why they are ſometimes more near to, and ſometimes more remot from the earth, *&c.*

To conclude, of the diſtance of the fixed Stars from the earth, I can ſay nothing. For Obſervations tells us, that the Angle of Paralax (by which the diſtances of the Planets is exactly determined) is altogether inſenſible, as in relation of this Orb. And from thence it follows, that it is impoſſible (by the wit of man) to obtain either their Diſtances or Magnitudes;

CHAP. XI.

Of the Trees, Herbs and Planets, under the government of the ſeven Planets.

THe great wiſdom of a Phyſitian is to know what Planet cauſes the diſeaſe, and whether by Simpathy or Antipathy; for, as the cauſe is, ſo muſt the cure be, *viz.* Simpathetical, or Antipathetical: Simpathetical cures ſtrengthneth nature, Antipathetical cures in one degree or other weakneth it; But becauſe I am not now to act the part of a Phyſitian, (although I much honour their Functions) nor to preſcribe or medle with their Manual Operations; but as a *Mathematician*, I may lawfully and acceptably direct my diſcourſe to the *Aſtrological* Phyſitian, who of all others (in that Profeſſion) I eſteem moſt, for he only knows the Influence of the

Stars

Stars upon humane bodies, and can tell a mans diſeaſe by the Stars, without going to viſit the ſick, *&c.* to theſe Gentlemen therefore I direct my ſpeach. When a Planet cauſeth a diſeaſe by Simpathy, the beſt and only way is to cure it by the Simpathetical Herbs under the dominion of the ſaids Planet; but if he cauſe the diſeaſe by Antipathy, look to what Planet it's to, whether it be to the Sun or Moon, *&c.* As for example, A young Student in Phyſick preſented an Urine to me, and deſired my Judgement what I thought of it, and of the Patient whoſe it was: I found *Mars* to be the cauſer of the diſeaſe, and in partile oppoſition to *Venus*, and ſhe hard by the Dragons Tail, * I told him the Patient was afflicted in the Inſtruments of Generation, which was moſt true (as he confeſſed) Therefore I concluded that it was by Antipathy to *Venus*, and ſo I bade him make uſe of the Simpathetical Herbs of *Venus* for cure. I mention this Gentlemen, only for your beſt advantage in attaining the true cauſes of the diſeaſe, whether it be by the Nativity, Decumbiture, or Urine, that ſo you may ſpeedily diſcover what Simpathetical Herbs are fit to cure it.

But to return, the Herbs and Plants under the dominion of *Saturn*, are, Barley, Redbeets, Byſoil, Birdsfoot, Biſtort, Buckhorn-plantane, Clavers, Comfray, Cudweed, Syatica-Creſſes, Croſwoort, Darnal, Dodar, Epithimum, Elm-tree, Fleawort, Flaxweed, Fumitory, Stinking-Gladwin, Gutwort, Hakweed, Humlock, Hemp, Henbane, Horſtail, Knapweed, Knotgraſſe, Medlartree, Moſs, Mullen, Oſmond-royal, Nightſhade, Pylewort, Polipodium, Poplartree, Quinſtree, Ruptruretree, Ruſhes, Solomonſeal, Saraſens-conſound, Servicetree, Splenwort, Tamari, Melancholy-thiſtle, Blackthorne, Throughwax, Turian, Woad.

Herbs under *Jupiter*, be

Agrimony, Alexander, Aſparagus, Avens, Baytree, Whitebeets, Waterberony, Woodberony, Bilberries, Burrage, Bugloſſe, Chervil, Sweetciſly, Cinqfoyl, Coſtmary, Dandeleon, (or rather Denſ-leonis, Lyonstooth,) Docks, Dogſgraſſe, Endivy, Hartſtongue, Hyſop, Houſleek, or Seen-

Seengreen, Lungwort, Liverwoort, Sweetmaudlen, Oaktrees, Redroſes, Sage, Sawcealon, Scurvygraſſe, Succury, Ladies-thiſtles, Bloodwort.

Herbs under *Mars*, be

Arſ-mart, Aſarabaca, Barberries, Sweetbazil, Bramble, Briony, Brooklime, Butcherſbroom, Broom, Broomrape, Crowfoot, Cuckowpint, Cranbil, Cotton-thiſtle, Flaxweed, Furbuſh, Garleeks, Hathorn, Hops, Maſterwort, Muſtard, Hedge-muſtard, Nadir, Netles, Onions, Pepperwort, Carduſbenedictus, Radiſh, Horſradiſh, Rubarb, Rapontick, Baſtard-Rubarb, Thiſtles, Starthiſtls, Woolythiſtle, Tobacco, Treacle, Muſtard, Mithridet-muſtard, Wold or Weld, Wormwood.

Herbs under the *Sun*, be

Angelica, Aſhtree, Balm, Oneblade, Burnet, Butterbur, Cammomill, Celandine, Centaury, Ibright, Saint-Johns wort, Loveage, Marigolds, Miſleto, Peony, Saint Peters wort, Pimpernel, Roſaſolis, Roſemary, Rue, Safron, Tormentil, Turnſole, Viperſbugloſſe, Walnut-tree.

Herbs under *Venus*, be

Alhoofe, Aldertree, Apletree, Arach wyld and ſtinking Archangel, Beans, Ladiesbedſtrow, Birchtree, Biſhopsweed, Blits, Bugle, Bardock, Cherytree Chickweed, Cichpeaſe, Clary, Cockshead, Coltsfoot, Cowſlips, Daiſies, Devilsbit, Elder, Eringo, Fetherfew, Figwort, Filipendula, Foxgloves, Goldenrod, Gromwel, Groundſel, Herb-Robert, Herbtrew-love, Kidneyswort, Ladiesmantle, Malows, Mint, Motherwort, Mugwort, Neips, Parſneips, Peachtree, Peartree, Penyroyal, Periwinkle, Plantan, Plumbtree, Primroſes, Ragwort, Sorel, Sowthiſtles, Spignell, Strawberies, garden-Tanſie, wyld-Tanſie, Tezles, Vervain, Vinetree, Violets, Wheat, Yarow.

Herbs under *Mercury*, be

Calamint, Carats, Caroways, Dill, Elecompane, Fenel, Fern, Germander, Haſlenut-tree, Horehound, Houndstongue, Lavender, Liquoris, Walrue, Maidenhair, ſweet Marjorum, Melilot, Moneywort, Mulberytree, Oats, Perſly, Cowparſnip, Pelitory, of the wall, Groundpine, Reſtharow, Samphire, Winter and Snmmer Savory, Scabions, Smalage,

Smalage, Southernwood, Meadowtreefoyl, Gardenvalerian, Woodbin, or Honyſuckles.

Herbs under the *Moon* be,

Aderstongue, Cabages, Coleworts, Columbines, Watercreſſes, Duckweed, Waterflag, Flowerdeluce, Fluelin, Ivy, Letice, Waterlillies, Loſeſtriſe, Moonwort, Mouſe-ear, Orpine, Popyes, Purſlain, Privet, Ratlegraſſe, White-roſes, White-ſaxifrage, Winter-Gilitflowers, the Willowtree.

CHAP. XII.

Of the particular Diſeaſes which the Planets ſignifie.

HAving told you in the preceeding Chapter of the particular Herbs and Planets under the government of the ſeven Planets, my next Taſk is, to ſhow what diſeaſes each particular Planet ſignifieth, and they are theſe.

Saturn cauſeth Toothach, Quartan agues, all diſeaſes of Melancholy, Cold and Dryneſſe, Leproſie, Rhumes, Conſumptions, Black-jaundice, Palſies, Tremblings, Vain fears, Gouts, Hemarhoids, Broken bones, Diſlocations, Deafneſſe, Ruptures, (if *Saturn* be in *Leo* or *Scorpio*) Hiack paſſion, Chin-couch, Pains in the B'ader, all long Diſeaſes, all madneſs that comes of Melancholy or Fears of a Hobgoblin, or Brouny.

Jupiter, all infirmities of the Liver and Veins, Inflamations of the Lungs, Pluriſies and other Apoſthums about the Breaſt and Ribs, all diſeaſes proceeding of Putrifaction of Blood, Wind, Quinſies and Feavers.

Mars, Peſtilences, Burning-Feavers, Tertian and Quotidian agues, Megrim, Carbuncles and Plague ſores, Burnings, Scadings, Ringworms, Bliſters, Phrenſies, Fury, Hairbrains, Sudden diſtempers of the Head coming of heat, Yellow-jaundice, Bloody-flux, Fiſtulas, all wounds what-

whatsoever, Diseases in the Instruments of Generation, Stones in the Reins or Bladder, Scars and Pockholls in the Face, all hurts by Iron or Fire, all diseases coming of Choler, Anger or Passion.

The *Sun* causeth Pimples and Burles in the Face, Afflictions of the Heart, Heart-burning, Trembling, Faintings, Sore eyes, Diseases of the Mouth, all diseases of the heart, Stinking breath, Rotten Feavers.

Venus, all diseases of the Womb, as Suffocation, Precipitation, Dislocations, all diseases incident to the Instruments of Generation, the Reins and Navel, running of the Reins, *Noli me tangere*, Priapismus, all diseases coming by inordinate Love or Lust, *&c.*

Mercury, all diseases of the Brain, as Vertigos, Madness, diseases of the Lungs, as Asthme, Phthisicks, all imperfections of the Tongue, as Stammering, Lisping and Hoarsness, Coughs, Snuffling in the Nose, Stoping of the Head, Dumbness, Folly and Simplicity (the Epedemical diseases of the Time) and whatsoever hurts the Intellectual Faculty, *&c.* I shall live *Mercury*, and come a little lower to the *Moon*.

The Moon causes, the Cholick, Belly-ach, stoping and overflowing the Terms in Women, all cold and Rhumatick Diseases, Worms in the Belly, hurts in the Eyes, Surfeits, rotten Coughs, Convulsions, Falling-sickness, the Kings-evil, Smal-pox, and Measles, all Coagulate and crude humors in any part of the body, Lethargy and Flegmatick Diseases.

CHAP. XIII.

Shewing how to rectifie a Nativity by the trutine of Herms.

THe first and easiest way of rectifying an Nativity, and reducing it to that moment of time when the Infant made its exit from the dark prison of the Mothers womb, and

and began to be a visible member of the Creation, is by the trutine or scrutiny of *herms* (one of the wisest of all mortall men, and as ancient as *Moses*) who was of this opinion, that the very degree of the same sign wherein the *Moon* was at the Conception of the Childe, should be the true sign and degree of the ascendant at the Birth; this way of Rectification is far more ancient then the animador of *Ptolomy*, and allowed by *Ptolomy* himself, in his 51 *Centiloquium*, his words are, *What sign the Moon is in at the time of the Birth, make that very sign the ascendant at Conception, and what signs the Moon is in at Conception, make that same sign, or the opposite unto it, the sign ascending at the Birth*, &c. He therefore that would know the exact time aforesaid (its no matter whither it relate to himself or another,) must first erect a Cœlestial Scheme for the estimate time of the Birth, and rectifie the place of the Moon thereto, and place her in the Figure.

Then take the distance of the Moon from the ascendant, if she be Subteranean, (or under the earth) and from the seventh house if she be above the earth, substracting the signs and degrees of the Angles, from the signs and degrees of the Moon (by adding 12 signs if Substraction cannot otherwise be made) and with the distance of the Moon from the Angle, enter the Table, Intituled, *A Table of the mansion of the Childe in his Mothers womb.* Under the titles of signs and degrees, seeking the neareſt Number thereunto, and over against that, under the Columns of the Moon, under, or above the earth, and in the respective Columns, you will find the certain number of dayes, that the Childe remained in the dark prison of its Mothers womb.

This done, consider whither the year of Birth be Common or Bisextile, and what day of the year the Birth is, then Substract the number of dayes that the Childe remained in the womb, from the day of the birth, (by adding 365 or 366 (according as the year of birth is common or Bisextile) if Substraction cannot otherwise be made) and with the residue enter the Table of Moneths, under the year of Birth, and you will find the Moneth

neth, and day of the Month, when the Childe was Conceived.

A Table of the Mansion of the Childe in its Mothers Womb.

Signs.	Degr.	*Luna sub terra.*	*Luna supra terrā.*	A Table of the Moneths. Moneths	Common years.	Bisext. years.
0	0	273	258	*January*	31	31
0	12	274	259	*February*	59	60
0	24	275	260	*March*	90	91
1	6	276	261	*April*	120	121
1	18	277	262	*May*	151	152
2	0	278	263	*June*	181	182
2	12	279	264	*July*	212	213
2	24	280	265	*August*	243	244
3	6	281	266	*Septemb.*	273	274
3	18	282	267	*Octobor*	304	305
4	0	283	268	*Novemb.*	334	335
4	12	284	269	*Decemb.*	365	366
4	24	285	270			
5	6	286	271		dayes	dayes
5	18	287	272			
6	0	288	273			

Then observe the place of the Moon, the day of Conception at noon, which if she be not distant from the estimate angle (or ascendant of the Nativity) above 13 degrees, then the day found is the day of Conception, but if she is more remote, you may imagine either the good aspects of the Fortuns put the Birth forwards, or the unroward aspects of the infortuns retarded it.

These things being premised, I come next to practice, and for illustration thereof, I shall adde one Example with as much brevity as I can.

A

A Childe was born in the famous City of *Glasgow*, Anno Christi, 1632. upon Sunday the 15 of *July*, about half an hour past 8 in the morning, as was observed and is reported.

At which estimate time aforesaid, the Cusp of the ascendant is *Virgo*, 18. deg. 19 min. (in the Latitude of 56. degrees) The Moon is *sub terra* under the Earth) viz. within the limits of the third House in *Scorpio*, 10 degrees 25. min. Now to know the Month and day when the Childe was conceived, I marshal the matter according to the following method.

		Sig.	deg.	m.
True place of the Moon		7.	10.	25
Cuspe of the ascendant	Substract.	5.	18.	19
Rests the distance Moon from the ascendant.		1.	22.	06

With which distance, I enter the Table of the Childes Mansion, and the neareſt number thereto in signs and degrees, is 1 sign, 18 degrees. Against which (in the Column, Intituled, *Sub terra*, or the Moon under the Earth) I find 277. intimating that the native was 277 dayes in the obscure prison of his mothers womb.

The native was born in 1632. which divided by four, and nothing remaining, shewes 'tis a Bisextile year.

	dayes,
Number of the dayes from *January* 1 to the 15 of *July* in a Bisextile year, is,	197
For facility of operation I add the number of dayes in a Bisextile year,	366
The Aggregate	563
From which I substract the number of dayes that the Childe was in his Mothers womb,	277
Rests	286

Which in the Table of Moneths (for the Bisextile year) points out the 12 of *October* 1631. on which day the

the Childe was conceived. The Moon that day at noon (according to preciſe Calculation from *Keplers* Tables) was in *Virgo*, 20 deg. 56 min. 31 ſeconds, which is not above 3 degrees diſtant from the aſcendant at birth: And therefore I conclude that the Childe was conceived the 12 of *October* 1631. as aforeſaid. And thus much ſhall ſerve, for the Correction of a Nativity by the *Trutina Hermetis*. There be other wayes of Rectifying the eſtimate time aforeſaid, as the Animodar of *Ptolomy*, and accidents of the Native, which Latter is moſt exact, and that which I make practice of next, the Trutine of Herms.

If you deſire to know, whither the Childe be likely to live any ſpace after it's born; for many times we ſee Children live but a few Months; yea, ſome but a few dayes, hours, or minuts: Sometimes the Mothers womb becomes the Infants Tomb. O how thankful to God ſhould we be, who are preſerved to the age of 30. 40. 50, &c. 'Tis a great bleſſing from God to have a long leaſe of our life, whoſe kindneſſe and infinit love we ſhould endeavour to requite, by ſpending it in Divine Contemplations and Adorations, *&c.* I ſay, if you would know (from the Hierogliphical Characters of heaven,) whither the Infant will live paſt his Infancy, then obſerve theſe few Aphoriſms following.

1. Erect a Cœleſtial Schem upon the eſtimative time given, and correct the ſame by the Trutine of Herms as aforeſaid, and then obſerve.

2. If there be an unfortunate Planet in the Aſcendant vitiating the degree thereof, or in *Quartile* or *Oppoſition* unto it.

3. If *Saturn* or *Mars* be conjoyned in the Aſcendant, or if the light of the time be afflicted.

4. The Lord of the Aſcendant Combuſt, Cadent, or Retrograde.

5. If all the Planets be Subteranean, or if the Birth be upon a new or full Moon.

6. The Moon in *Conjunction*, *Quartile*, or *Oppoſition* of *Saturn* or *Mars*, in the 4th, 6th, 8th or 12th Houſes.

7. The

7. The Moon beſieged between the bodies of *Sol* and *Mars*, void of all helps from the Fortunes.

8. The light of the time eclipſed at the moment of birth, is a ſure argument of a ſhort life.

9. If the birth be by day (*viz.* between the Suns riſing and his ſeting) then have ſpecial regard to the Sun; if by night, to the Moon, becauſe he is, *Fons vitalis Potentiæ, Luna naturalis*, according to *Ptolomy, Cent. Aphoriſ.* 86. and according to the firſt Aphoriſm of *Herms Triſmegiſtus*, (*Sol & Luna poſt Deum, omnium viventium vita ſunt*) they are the life of all living creatures. And therefore if the Luminaries be ſtrong or well dignified, or in a good Houſe of Heaven, or in a favourable Aſpect of *Jupiter* or *Venus*, whither the native be born by day, or by night, 'tis a ſure argument that the childe then born may live long, but if otherwiſe, they deny long life.

10. They who are born upon a full Moon, dye by acceſſe, or too great abundance of moiſture; and upon a new Moon, for want of humidity, or by reaſon of too much dryneſſe; uſually the moſt ſickly, ſmall and weakeſt bodies, are brought forth upon the change of the Moon.

11. The Conjunction of many Planets in the Aſcendant void of all Eſſential Dignities, argueth a ſhort life *probatum eſt.*

12. The Lord of the Aſcendant going to the Conjunction of the Lord of the 8. or if the Lord of the Aſcendant be in the 8. or Lord of the 8. in the Aſcendant, the ſame.

13. If the Luminaries ſeparate from a fortune, and apply to a Malevolent, the Childe ſhall then be in great danger of death, at what time that Luminary (by a juſt meaſure of time) comes either to the body, or hath a courſe to that unhappy Aſpect.

14. If you ſhould happen to perceive ſuch an application as aforeſaid, and would know the time when the eminent danger will happen, take and reſolve the Ark of Direction into Time, by allowing to every degree one

year, five dayes, eight hours, and ſo you will be eaſily enformed of the time, *&c.*

Theſe are the general teſtimonies of a ſhort life, if none of them happen in a nativity, the childe may live until ſome eminent direction of the Sun, Moon or Aſcendant, unto ſome Malevolent Promittor, prove the cruel *Atropos* to cut in two the threed of life.

Fac ut experiar, JEHOVA, finem meum, menſuram dierum, quid ſit; experiar quam durabilis ſum.

CHAP. XIV.

Of the Year what it is, and the quantity thereof.

A Year is the moſt principal, ordinary, common and uſual part of time, whereby not only the ages of men and other accidents of the world are meaſured, but alſo the times of (almoſt) all our actions in the world, their beginnings, progreſſe, durations and intervals, are ſquared and reckoned thereby: and albeit the ſaids ſpace of time, called (years) are variouſly accounted according to the cuſtome of diverſe Nations, greater in ſome, and leſſer in others; yet hath it (or at leaſt wiſe ſhould have) its principal dependance upon the true place and motion of the Sun, by which the years are meaſured, and therefore they are rightly divided into Aſtronomical and Political.

The Aſtronomical years are meaſured, either according to the Periodical motion of the Sun, or the Conjunction of the Moon with the Sun, and therefore twofold, *viz.* *Solar* or *Lunar*.

The *Solar* year is that ſpace of time, that the Sun (by his proper motion) is departing from ſome Radical or fixed Point of the Ecliptique, to his return to the ſame again, and this may be called either Tropical or Syderial.

The Tropical year, is that ſpace of time in which the Sun

Sun is departing from one of the Tropical, Equinoctial, or Solſtitial Points, and (running through the whole Ecliptique) returns to the ſame Point again. The true length of this year (according to the acurate Obſervations of Ancient and Modern Aſtronomers) is 365 dayes, 5 hours, 49 min. 4 ſec.

The Syderal (or Starry year) is that ſpace of time, wherein the Sun is departing from ſome fixed Star, or determined Point of the 8 Sphere, and returns to the ſame again: the true Quantity whereof (immutably) is 365 dayes, 6 hours, 9 min. 21 ſeconds.

The Political or Civil years be ſuch as are every where uſed for diſtinction of times, wherein a reſpect is had to the motions of the Luminaries, Conjunctly or Severally.

The year is uſually called either Common or Biſextile, the common year contains (according to the conſtitution of *Julius Ceſar*) 365 dayes, 6 hours, which 6 hours make every fourth year Leap-year, which contains 366 dayes: it is called Biſextile of *Bis* and Sex (twice ſix) becauſe the ſixth Calends of *March* is twice repeated: it is called *Intercalar*, becauſe of the day that is put in between and Leap-year, becauſe that (by the addition of a day) the fixed holy dayes *&c.* do, as it were, leap one day further into the week, then it was in the year preceeding.

CHAP. XV.

Of the Judgement of the Weather from the Cœleſtial Bodies.

ALthough the knowledge of the Weather be a thing ſo common, yet the true Key is exceeding difficult: and therefore I have thought it neceſſary to write ſomething thereof, that the world may ſee and know that our Judgement of the Weather in our yearly Almanacks is not built upon a meer conjecture or bare gueſ-

fing (as Millions of ignorant men think) but upon principles of reaſon, and that reaſon ratified and confirmed by many hundreds (if not thouſands) of years experiences, and yet it's but counted (amongſt ignorant Aſſes) at beſt, but gueſſings: I charge my Readers for the future, that they do not carp at that (in my Book) which they cannot imitate, leſt they attain to the honour of being branded for Ignorant Fools, whoſe dimmer eyes are not able to penetrate the Aſtral Spheres, *&c.*

I dave digreſſed a little, but I ſhall preſently wheel into the Road again, and perform what I have promiſed, with as much brevity and facility as I can.

1. To the time of the Suns ingreſſe into *Aries*, and to the Conjunctions or Oppoſitions of the Luminaries preceeding the ſame. Erect Cœleſtial Schems, then obſerve whether the place of the Luminaries at the time of their *Conjunction* or *Oppoſition* (preceeding the Ingreſſe) happened in a moyſt, cold or dry Manſions, and of what Planets they are aſpected.

2. If *Saturn* ſhall be well diſpoſed in an Angle, and in a moiſt Aſteriſm, without impediment, neither applying to another Planet at the time of the Suns Ingreſſe, it preſageth temperate and ſeaſonable ſhowres, and fills the Heavens with obſcure Clouds; but eſpecially in that Lunation wherein he hath the chief dominion. ——— But if *Saturn* be impedite or evil diſpoſed, it portends turbulent Storms of Wind and Rain, & cold denſe thick clouds eſpecially if *Mercury* or *Venus* ſhall be in moiſt ſigns, and behold him from an Angle, for in ſuch a caſe the Aſtrologer may predict of much Rain.

3. If *Jupiter* ſhall be in ſuch a Poſition, it will produce Winds and Rain, with rediſh Clouds.

4. *Mars* ſo poſited, ſignifies yellow Clouds, Thunder Coruſcations and Rain, eſpecially in thoſe times proper and convenient, and the rather if *Jupiter* or *Mercury* give any teſtimony thereof.

5. The Sun in ſuch a Poſition, as aforeſaid ſhewes Red Clouds, and great ſtore of Wet: There are ſome of the beſt Aſtologers who wil not Elect the Sun and Moo

for Rulers, because they are general significators of the Times.

6. The Moon applying to *Venus*, and assuming the prerogatives aforesaid, bringeth gentle Rain, or at least wise Clouds, but if the Moon shall apply to *Mercury*, or if *Mercury* shall be Lord and Ruler of the Figure with *Jupiter*, it portends Showres and violent Winds, and a cloudy Air, yet somewhat more violent, and sometime again more remiss in respect of signs, mansions of the Moon, and eratick Stars.

7. If the Panet ruling shall be Oriental, his effects will appear in the end of time, if Occidental, in the beginning whither it be in a Revolution or Solar Ingresse.

8. Many Planets, especially *Saturn*, *Jupiter* and *Mars*, in Northern Signs, argue a hot Summer, and a Temperate Winter. The contrary when many Planets (especially the three aforesaid) are in Southern Signs, for so they signifie a cold and moist Peristasis of the Air, and a colder Winter.

9. *Saturn* in Southern Signs, and especially in *Capricorn* or *Aquary*, argue terrible Winters of Frost and Cold, Summers remiss in heat.

10. In the Revolution of the year, if *Mars* shall be in *Aries* or *Scorpio*, it portends much Rain: if in the houses of *Saturn*, it sheweth but little, in others a Mediocrity.

11. In the *Conjunction* or *Opposition* preceeding the Revolution of the year, if *Mars* shall behold the same place, it signifies Lightning and Thunder, and sometimes a Comet hath succeeded such a Position.

12. In the Revolution of the year, when *Venus*, *Mercury* and the *Moon* are found in moist Mansions, it portends much Rain.

13. At the Ingresse of the Sun into the Tropick signs, if *Venus* shall aspect the Moon from a moist place, it's a sign of much Rain: or if *Mars* from *Scorpio* shall aspect *Venus*, it pretends likewise Rain.

14. When the Sun is in *Aries* or *Taurus*, if *Venus* be then Retrograde, the Spring will be moist.

15. Upo

15. Upon a *Conjunction* or *Oppoſition* of the three ſuperiour Planets, either mutually, or with the three inferiours: if the Moon ſoon after apply unto them by a *Quartile* or oppoſite Aſpect, then be ſure of Rain or Winds, according to the nature of theſe Planets ſo Aſpected.

16. When the *Moon* or any other Planet, tranſits the Angles of the Worlds Revolution, or Angles of the new and full Moon, then look for ſome change of Air, according to the nature of thoſe Planets and Angles.

CHAP. XVI.

How to Prognoſticate more particularly of the Weather by the Planets mutual Aſpects.

1. THe *Conjunction* of *Saturn* and *Jupiter* is a rare Aſpect, happening but once in twelve years, and therefore ought acurately to be obſerved; for it produceth its effects in the mutations of the Air, many dayes before and after, becauſe of the Tardity of their motions, *&c.* If this *Conjunction* happen in hot and dry manſions, it will produce dryneſſe accordingly; it increaſeth heat in Summer, and mitigats the cold in Winter, but if it happen in moiſt ſigns, it portends Rain and Inundations.

2. If *Saturn* claim principal dominion in the place of the *Conjunction*, it ſignifieth many diſeaſes, and much evil in general; but if *Jupiter* prevail (as he doth in the year 1663. the *Conjunction* happening in *Sagitary*) it's a ſign that much good ſhall follow within few years, and that many unneceſſary Cuſtoms ſhall be aboliſhed, and many wholeſome Laws eſtabliſhed, ere the effects of that *Conjunction* ſhall determine.

3. Theſe ponderous Planets in *Oppoſition*, *Quartile*, *Trine*, or *Sextile*, is a ſign of continuance of ſeaſons; but for the moſt part, they bring forth temperate ſtorms of Rain

Rain and Hail, particularly happening in the Spring-time: in moist Asterisms, it produceth turbulent Air, in Summer Thunder, in Autumn Winds and Wet, in Winter thick Clouds and dark Air.

4. *Saturn* and *Mars* in *Conjunction*, *Quartile*, or *Opposition*, produceth Winds, Hail, Lightning, Thunder and Coruscations, according to the seasons of the year: In the Spring, Wind, Rain and Thunder: In Summer, Hail and Thunder: In Autumn, violent Rain: And in Winter, diminution of cold.

5. *Saturn* and *Sol* in *Conjunction*, *Quartile*, or *Opposition*, is, *Apertio portarum*, if it happens in moist constellations. In Spring it threatens cold Clouds: in Summer, Hail, Thunder and remission of Heat: in Autumn, Cold and Rain: in Winter, Frost, Snow and cold weather.

6. *Saturn* and *Venus* in *Conjunction*, *Quartile*, or *Opposition*, generally produceth cold Rain and Showres. In Spring, Rain: in Summer, sudden and hasty showres: in Autumn, cold Rain: in Winter snow.

7. *Saturn* and *Mercurius* in *Conjunction*, *Quartile* or *Opposition*, In the Spring produceth Winds and Rain, in Summer, winds and showres: in Autumn, winds and clouds: in Winter cold and snow.

8. *Saturn* and the *Moon* in *Conjunction*, *Quartile* or *Opposition*, in moist signs, portends clouds and coldnesse, in Airy signs, cold, especially in dry signs, sharp air, and (if it be Winter) a frosty season.

9. *Jupiter* and *Mars* in *Conjunction*, *Quartile* or *Opposition*, changeth the quality of the air, according to the quality of the Signs and Stars, which they are joyned with or aspected to. If in hot and dry mansions it causeth great heat, in moist signs thunder and rain, *&c.*

10. *Jupiter* and the *Sun* in *Conjunction*, *Quartile* or *Opposition*, brings forth blasts of wholesome winds and serenity, particularly in Spring, and in Autumn winds, in Summer thunder, in Winter remission of cold.

11. *Jupiter* and *Venus* in *Conjunction*, *Quartile* or *Opposition*, doth generally produce serenity, and temperature of air: in moist signs it promiseth gentle showres,

in

in other ſigns fair weather, wholeſome winds, and fertility of all things.

12. *Jupiter* and *Mercurius* in *Conjunction*, *Quartile* or *Oppoſition*, ſtirreth up winds and rain in fiery ſigns, begets dryneſſe and warm winds in airy fair weather, but winds at all times in the year when they are in ſuch mutual Aſpects.

13. *Jupiter* and the *Moon* in *Conjunction*, *Quartile* or *Oppoſition*, alters the quality of the air according to the ſigns they poſſeſſe, but generally a temperate ſeaſon.

14. *Mars* and the *Sun* in *Conjunction*, *Quartile* or *Oppoſition*, in fiery ſigns portends heat and dryneſſe: In the watry, hail, thunders and lightning, in the airy clouds, and in the earthly, violent winds, *&c.*

15. *Mars* and *Venus* in *Conjunction*, *Quartile* or *Oppoſition*, in or from moyſt ſigns, argueth abundance of (if not too much) rain eſpecially in Spring and Autumn: In Summer ſhowres, in Winter remiſſion of cold, and ſnow if *Saturn* behold them.

16. *Mars* and *Mercurius* in *Conjunction*, *Quartile* or *Oppoſition*: in Winter and Spring argueth ſnow, in Summer hail and thunder, in Autumn great winds, in fiery and dry ſigns, exceſſive drowth and winds.

17. *Mars* and the *Moon* in *Conjunction*, *Quartile* or *Oppoſition*, in moiſt ſigns rain, in fiery, dryneſſe, red clouds, and ſometimes rain, in Summer hail, lightning and coruſcations.

18. The *Sun* and *Venus* in *Conjunction*, commonly produceth moiſture, in Spring and Autumn rain, in Summer ſhowres and thunder.

19. The *Sun* and *Mercury* in *Conjunction*, in the airy ſigns produce winds, in the watry rains, in the fiery warm winds.

20. The *Sun* and the *Moon* in *Conjunction*, *Quartile* or *Oppoſition*, in moiſt ſigns portends rain, in fiery, fair weather, but generally it alters the air, according to the nature of the ſeaſon and ruling Planet.

21. When the *Sun* ſhall enter the 18 degree of *Scorpio*, if *Venus* be (then) in a moiſt place, it's a ſign of rain.

22. If

22. In Winter, if *Venus* be direct and Oriental, it ſignifies but little rain at the beginning, but more at the end.

23. When *Venus* applieth to *Mars* in *Scorpio*, it brings rain immediatly.

24. When the *Sun* and the *Moon*, *Venus* and *Mercury* ſhall be all conjoyned together, it argueth continuall ſhowres that day.

25. At the time of the *Conjunction* or *Oppoſition* of the Luminaries, if *Venus* ſhall be in an Angle, it's a certain ſign of rain.

26. The Lord of the Aſcendant in (*Conjunction* or *Oppoſition* of the Luminaries) a moiſt ſign produceth rain.

27. When the *Moon* ſhall come to the ſign aſcending of her *Quartile*, *Conjunction* or *Oppoſition*, the time ſhall be changed according to the quality and nature of the ſign and Aſteriſm.

28. A ſpecial regard muſt be had to the nature of the earth and air you live in (or write for) I mean, peculiar to your Horizon; becauſe that in all places they are not of alike nature, neither do the winds blow alike in all Horizons, ſome being Tropical and peculiar to one place, others Chronical, which come at a certain time of the year, *&c.*

CHAP. XVII.

Vulgar Obſervations of the changes of the Weather.

IN the preceeding Chapters, I have given you the choiceſt Aphoriſms, for giving judgement upon the weather: and I am confident, that he which underſtands them (which I fear will not be many) may not only give a probable conjecture of the weather, for (one) but many years to come; But becauſe the preceeding Aphoriſms may happen to (ſome) to be of difficult underſtanding to the illiterate, I ſhall therefore ſhew (even the moſt rurall)

rural) how to foretell the changes of the weather, if he have but the eyes of ſenſe and underſtanding in his head: and for his greater facility, I ſhall Marſhal the method in theſe ſeven Deviſions.

1. Signs of fair weather.
2. Signs of rain.
3. Signs of wind.
4. Signs of hot weather.
5. Signs of drought.
6. Signs of cold weather.
7. Sings of froſts continuance.

This is the method, now to the matter.

1. Signs of fair weather.

1. The Sun riſing and ſetting clear: 2. The Moon clear three dayes after the Change, or before the Full: 3. Spots appearing in a Full Moon: 4. Clouds with golden edges towards Sun ſetting: 5. A cloudy ſky clearing againſt the wind: 6. The Rain bow appearing only Red and Yellow: 7. A Red Evening or a Gray Morning.

2. Signs of rain.

1. When the Sun in his riſing is hidden with a black cloud: 2. When the Moon (within three or four days after the Change) is blunt on both horns: 3. The Rain-bow appearing in a fair day, the greener, the more rain: 4. The extraordinary chattering of the Pyets: 5. Cattell licking their hoofs behind: 6. When the greateſt Stars only appear, and that miſty: 7. Lute or Viol-ſtrings breaking untouched.

3. Signs of wind.

1. Red clouds in a morning. 2. Often ſhooting of Stars: 3. Clouds flying ſwiftly in a clear air: 4. The Rain-bow red: 5. Black circles with red ſtrakes about the Sun or Moon: 6. Stars dimn and fiery, it's a ſign of winde and ſhowres when the Sun beams appear before he riſeth: 7. If the Sun ſets pale, or be encloſed with a black circle when he is near the time of his ſetting.

4. Signs

4. Signs of hot weather.

1. Many Bats flying abroad ſooner then ordinary: 2. A white miſt riſing out of Moores and Waters before the Sun riſe: 3. The Kyts (or Gleds) flying high in the air: 4. Crowes or Ravens gaping againſt the Sun: 5. Great ſtore of Flyes and Midges playing in the Sunſhine towards night.

5. Signs of drought.

Stars ſeeming dimn or fiery red, ſignifies both drought and wind.

Signs of cold weather,

As froſt, ſnow or hail. 1. Clouds flying low, ſeeming to touch the tops of hills: 2. Great flocks of ſmall Birds gathered together: 3. If in the Winter the Sun ſhine clear towards night: 4. The extraordinary twinkling of the Stars: 5. Clouds upon heaps like Rocks: 6. An obſcure circle about the Sun or Moon.

7. Signs of froſts continuance.

Snow falling ſmall in the beginning of a froſt; but if the ſnow fall bigg, *viz.* in great flakes, then it's like to thaw very ſuddenly, eſpecially if the Southwind blow.

CHAP. XVIII.

Of the Winds, their Names and Natures.

DAyly experience ſheweth that the diſpoſition of the Air is much varied by the Scituation of Winds, for according to their different bearing is the Seaſon much inclined, ſometime to Wind, Rain, and Snow, and ſometime to fair weather.

The wind (it ſelf) is nothing elſe but an exhalation or earthly humor paſſing over the Superficies of the Earth; or it is an Eliſian, or drawing forth of the Air out of a cold Region.

The

The four principal or Cardinal Winds which comes from the four Angles of the World, are called, the East, West, North and South, the *Latins* calls them *Septentrio*, *Auster*, *Favonius*, and *Subsolanus*.

Septentrio, the North wind, is cold and dry, is very wholsome, bringing serenity, preservating all things from corruption, albeit it be hurtful and pernicious to Flowers, young and tender Plants, by reason of its excessive coldnesse.

Auster, the South wind, is warm and moist, sultry, hurtfull and dangerous, hurts the sight, stuffes the head, makes men slothfull, engenders Diseases, putrid Feavers, Pluriſies, Inflamations of the Lungs, and when this wind produceth serenity, it's with great heat.

Favonius, the West wind, (called *Zephyrus*) is moist and watry, begetting Rain and Thunder, but in Summer fair weather, in Winter and Spring, Snow or Rain.

Subsolanus eurus, the East wind, is temperatly dry, it produceth Rhumes and cold Dewes, it bloweth most commonly at the Suns rising, and (for the most part) little in the night time.

These four are called *Venti principalles*, the chief winds, the intermediate winds between these, be North-east, South-east, South-west, North-west.

The North-east wind is (for the most part) cold and dry, ingendring clouds, and sometimes Snow; The South-east wind, is weak, moist, and producer of clouds and obscure air: The South-west wind is of a hurtfull quality, sickly, moist, producing clouds and rain: The North-west wind is most tonitruous, tempestuous, violent and hasty, causing a turbulent air.

The Laterall winds, are in number eight, viz. East, north-east, North north-east, North north-west, West, south-west, South south-west, South south-east, West north-west, East south-east.

The Colaterall winds are in number sixteen, viz.

1. East

1. East by North.	9. Southwest by West.
2. North-east by East.	10. West by South.
3. North by East.	11. Southwest by South.
4. Northeast by North.	12. South by West.
5. North by West.	13. South by East.
6. Northwest by North.	14. Southeast by South.
7. West by North.	15. Southeast by East.
8. Northwest by West.	16. East by South.

Thus having demonstrated briefly the Names and Natures of the Winds, I shall in the next Chapter shew you.

CHAP. XIX.

How to Prognosticate what winds will blow.

THat this may be known, for 'tis not only possible, but also probable, be pleased to take notice of these few particulars following:

In the Figure of the Suns ingresse into any of the Cardinal Signs, or *Conjunction* or *Opposition* of the Luminaries preceeding and succeeding, or any Monthly Lunations; observe carefully what Planet is predominant in the Figure, his position and mutual aspect (if he hes any) which known, do so much but as to take notice what Winds or Quarters of Heaven that Planet (or Planets) signifie (together with the sign he is posited in) & that you may not be mistaken herein; before I go further, I will here shew you the principal Quarters of Heaven, which the Planets signifie, by which you may (at all times) be enabled to give a more then probable conjecture, which way the wind will blow, For,

Saturn is mover of the Eastern winds, *Jupiter*, of the Northern, *Mars* of the West and Southern, *Venus* of the Southern, *Mercury* according to the nature of that or those Planets he is joyned with, or aspected to; the Luminaries are movers of the Western winds, &c.

The

The quality of the winds and their bearing is also known from Planets positions in the Figure; for those Planets with Latitude and South Declination, from the *Medium Cœli* moves the Southern winds to blow; from the *Imum Cœli* with Latitude and Northern Declination, the North winds: The Oriental Planets move the Eastern winds, and the Occidental the Western wind, and when they be weak, they cause the intermediate winds to blow. —Likewise the Scituation and Quality of the winds is found from the Latitude of the Moon, as she inclines to the North or South.

The Signs do also demonstrate the winds as well as the Planets, although the magnitude of their significations be lesse then the Planets, for they draw down their vertues, and transmits it to the Earth: *Aries*, *Leo* and *Sagitary* excite the North-west winds; *Taurus*, *Virgo* and *Capricorny* the South-east, *Gemini*, *Libra*, and *Aquary* the North-east, *Cancer*, *Scorpio* and *Pisces* the South-west.

We may in some measure Prognosticate the quality of the winds, for if *Mercurius* apply to *Saturn*, it produceth great winds, clouds and rain; if to *Jupiter*, sweet winds, if to *Mars*, warm winds; if to the *Sun*, warm and hurtfull winds; if to *Venus*, winds, and so I conclude this Chapter.

CHAP. XX.

Of Earth-quakes, Thunders, Lightnings, Comets, &c. their naturall causes and significations.

1. Of the *Rain-bow*.

THe Rain-bow is the shining and rebounding of beams of light, which turn to the contrary vapour again in the cloud, which is opposite to the Sun; and so according to the diversity of the thinnesse of that cloud do the beams appear, red above, yellow in the midle, and green

green in the lower parts, but in themselves all this while they have no real colour, that is a true colour. Here note, that the neerer the Sun is to the Horizon, the greater is the Rain-bow.

The effects of the *Rain-bow.*

If the Rain-bow appear or be visible in the morning it signifies moisture (unless great drought of the air work the contrary) if in the evening, fair weather; Moreover, if the Rain-bow appear fair, it betokens foul weather, but if it appear foul, look for fair weather, the greener the more rain, the reder the more wind.

2. Of *Rain.*

Rain is a cold vapour, and earthly humour or fumosities out of water attracted by the clouds; I omit to speak of prodigious and miraculous rains, as Milk, Blood, Flesh, *&c.* They who desire to read such like, see *Plinius, lib.* 2. *cap.* 58.

3. Of *Frost* and *Dew.*

It is a cold moist vapour, drawn up in the day by the faint heat of the *Sun*, and descends again in the night, where it is either congealed (as in Winter) or resolved into water (as in Summer) Frost in the Spring or Harvest is a sign of fair weather.

4. Of *Snow.*

Snow is a moist vapour, drawn up to the midle Region of the Air, then thickened and frozen into the body of a Cloud, and so congealed, descendeth into Fleeces.

5. Of *Haill.*

Haill is a Cloud resolved into water, congeals in its descension, the higher it comes, and the longer it tarrieth in the Air, the rounder is the Haill.

6. Of *Winds.*

Winds is a multitude of dry exhalations drawn up from the earth, enforcing it self here and there.

7. Of *Earth-quakes.*

Plenty of Winds, entered into Holes or Caves of the Earth, which being absent from above the Earth (causeth quietnesse) at last their violent bursting out (the earth sudden by closing again) causeth the Earthquake.

8. Tokens

8. Tokens of *Earth-quakes* to come.

A fiery clould appearing in the Element like a little Pillar. The obſcurity and darkneſſe of the Sun (without Clouds) and ſtrangely coloured, as bloody, *&c.* is a token of Earthquakes to come. Alſo when deep Well waters are ſeen to tremble at the bottome; or if the waters there be infected: Alſo a great quietneſſe by Sea and Land, and eſpecially long abſence of Winds. Moreover, ſtrange ſights and apparitions in the Air: or the noiſe and clamours (as it were) of men in the Clouds, ruſhings of Harneſſe, Mournings and Lamentations, &c.

9. Of *Thunders.*

Thunder is the quenching of fire in a cloud, or a hot and dry exhalation mixed with moiſture, carried up to the midle Region, and wrapping it ſelf in a cloud which is moiſt, there ariſeth a ſtrife; the heat beating, and with a mighty violence breaketh the ſides of the cloud with a thundering noiſe; the fire diſperſes and flaſhes, thence comes the lightning.

The ſignification of *Thunder.*

10. Thunders in the morning ſignifieth wind, about noon rain, in the evening great tempeſts. ——Some write that Sundayes thunder, ſignifieth the death of Learned men: Mundayes, the death of women: Tueſdayes, the pleuitude of corn and grain: Wedneſdayes, the death of harlots, and bloodſhed: Thurſday, plenty of ſheep and corn: Fryday, the ſlaughter of a great man, and other horrible murders: Saturndayes thunder, a general Peſtilent Plague, and great dearth.

Of *Comets* and their ſignifications.

A Comet is a Flame working in a dry and hot exhalation, drawn up to the higheſt part of the Air: its matter or ſubſtance after it's burnt and diſperſed, provoketh winds, it ſignifieth corruptions in the Air, Earthquakes, Wars, dearth of Corn, a common Death of man and Beaſt.

12. Of the *Whirlewind.*

A Whirlewind is a moſt ſudden and violent blaſt, breaking forth from the narrow paſſages of the Clouds, as it were

were winding, is vehemently carried and dashed against the earth, and so riseth back like a Ball, windeth about what it findeth, and bearing aloft all that's within its power.

CHAP. XXI.

Containing several Propositions in Astronomy.

THese few Propositions which I intend here to deliver, be such as are of ordinary and frequent use in the practice of the Mathematicks, and such as I hold fit and requisit for all them to know who shall make use of this Treatise.

Proposition 1.

To find the Suns Declination.

As the Radius is to the sine of the Suns greatest Declination, so is the sine of his distance from the next Equinoctial Point, to the sine of his Declination required, which is North if the Sun be in *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo* and *Virgo*, and south when he is in *Libra*, *Scorpio*, *Sagitary*, *Capricorn*, *Aquary* and *Pisces*.

Proposition. 2.

To find the Suns right Ascension.

As the Radius, is to the Tangent of the Suns Longitude, so the Co-sine of his greatest Declination, to the Tangent of his right Ascension required.

Proposition 3.

To find the Ascensional Difference.

As the Co-tangent of the Latitude, is to the Radius, so is the Tangent of his Declination, to the sine of his Ascensional Difference.

Proposition 4.

To find the Suns Amplitude.

As the Co-sine of the Latitude, is to the Radius, so is the sine of the Suns Declination, to the sine of the Amplitude required.

Propoſition 5.

To find the time when the Sun will be due East and West.

As the Tangent of the Latitude, is to the Radius, ſo the Tangent of the Declination, to the Co-ſine of the hour from the Meridian, when he will be due East or West.

Propoſition 6.

To find the Suns Altitude when he is due East or West.

As the ſine of the Latitude, is to the Radius, ſo is the ſine of the Suns Declination, to the ſine of his Altitude, when he is due East or West.

Propoſition 7.

To find the Suns Altitude at the hour of ſix.

As the Radius, is to the ſine of the Latitude, ſo is the ſine of the Suns Declination, to the ſine of the Suns Altitude, at the hour of ſix as was required.

Propoſition 8.

To find the Suns Altitude at any time aſſigned.

In this Propoſition there be two caſes; For,

1. If he be in the Æquator, ſay, — As the Radius, is to the Co-ſine of his diſtance from the Meridian, ſo is the Co-ſine of the Latitude, to the ſine of his Altitude required.

2. When the Sun hath either North or South Declination: As the Radius, is to the Co-tangent of the Latitude, ſo the Co-ſine of his diſtance from the Meridian, to the Tangent of ane Arch, which ſubſtracted from the Suns diſtance from the Pole, leaveth a ſecond Arch. Then ſay, As the Co-ſine of the firſt Arch, is to the Coſine of the ſecond Arch, ſo is the ſine of the Latitude, to the ſine of the Suns Altitude, as was required.

Propoſition 9.

To find the Suns Azimuth.

As the Co-ſine of the Suns Altitude, is to the ſine of his diſtance from the Meridian, ſo is the ſine of his diſtance from the Pole, to the ſine of his Azimuth required.

Propo-

Proposition 10.

To find the Declination, right Ascension and Ascensional difference of the Planets or fixed Stars.

Suppose the place of any Planet be given in Longitude and Latitude: As suppose the Moon were the Planet proposed her true place given, let be *Leo*, 29 d. 49 m. 53 s. and her Latitude 00 d. 22 m. 50 s. North (as at the time of that solar Eclipse, which will happen in *July* 1684.) which being given with the greatest obliquity of the Ecliptique, 23 d. 31 m. 30 s. we shall enquire for the Moons declination thus.

	d.	m.	s.
As the Radius,	90	00	00
Is to the sine of the Moons Longitude ab *Ariete*,	110	49	53
So is the Tangent of the greatest oblig.	23	31	30
To the Tangent of an Arch	22	8	24
Then from the Radius,	90	00	00
Substract the *Moons* latitude (because its North)	00	22	57
Rests distance of the *Moon* from the Pole	89	37	8
From which Substract the first Arch	22	8	24
Rests a second Arch	67	28	44

Then I say again;

As the Cosine of the first Arch	22	8	24
Is to the Cosine of the second Arch	67	28	44
So is the Cosine of the greatest oblig.	23	31	30
To the sine of the *Moons* declination required	22	16	50

2. To find the *Moons* right ascension, I say,

As the Cosine of the *Moons* declination	22	16	50
Is to the Cosine of the *Moons* longitude, *ab Ariete*	110	49	53
So is the sine of her distance from the Pole	89	37	8
To the sine of an Arch, viz.	22	36	2

Which added to 90 degrees, because the *Moon* is in the second Quadrant of the Ecliptique, (and to 180 deg. when in the third Quadrant, &c.) the Aggregate 112 deg. 36 min. 2 sec. is the right ascension of the *Moon*, as was required.

Lastly, Her ascensional difference is to be found according to the third Proposition aforesaid.

Proposition 11.

To find the oblique ascensions and descensions of the Planets and fixed Stars for any time assigned.

In this Proposition there be two Cases.

1. If the declination of the Planet or Star (given) be North, substract the ascensional difference from the right ascension, and the residue will be the Planets (or Stars) oblique ascension, but if you adde them, the aggregate will be his oblique descension.

2. If the Planets declination be South, add the ascensional difference and right ascension together, the sum will be the Planets oblique ascension, but if you substract it, the remainder will be the Planets oblique descension.

As in the former Example, the right ascension of the Moon is 112 deg. 36 min. 2 sec. and her ascensional difference 37 deg. 26 m. 31 sec. Now because the Moons declination is North, I substract the ascensional difference from the right ascension, and the residue 75 deg. 9 min. 31 sec. is the Moons oblique ascension; Likewise, I add the ascensional difference to the right ascension, and the aggregate 150 deg. 2 min. 33 sec. is the Moons oblique descension as was required.

CHAP. XXII.

To find the true time of the Suns rising and setting, with the length of the day and night for any day of the Moneth assigned.

ALthough I could prescribe several Rules for the resolution of this Question, yet I shall for your greater facility) make choyce of that which I suppose to be most familiar and easie, as by the Examples following will appear.

Enter the following Table with the 5, 10, 15, 20, 25 or 30 day of your Month, finding your dayes (aforesaid) on the top, and moneths on the margent, and in the common

mon Angle, you will find (by inſpection) the exact time of the Suns riſing the ſaid dayes, and by the Rule of Proportion for any other intermediate day.

A Table ſhewing the exact time of the Suns riſing every fifth day, exactly calculated for the Latitude of 56. degrees, 20. min.

Names of the Months	The dayes of each Moneth. 5 day	10 day	15 day	20 day	25 day	30 day
Ianuary	8 21	8 12	8 3	7 53	7 42	7 29
February	7 18	7 6	6 55	6 43	6 31	
March	6 12	6 0	5 48	5 36	5 24	5 10
April	4 58	4 48	4 36	4 26	4 15	4 5
May	3 55	3 47	3 39	3 32	3 26	3 21
Iune	3 18	3 17	3 18	3 23	3 32	3 28
Iuly	3 35	3 42	3 50	3 59	4 9	4 19
Auguſt	4 32	4 42	4 54	5 5	5 17	5 28
September	5 42	5 54	6 3	6 17	6 29	6 41
October	6 52	7 4	7 16	7 27	7 38	7 49
November	8 1	8 11	8 20	8 27	8 34	8 39
December.	8 42	8 43	8 42	8 40	8 36	8 31

Time of the Suns riſing in hours and min.

Example, I deſire to know the exact time of the Suns riſing the 15 day of *April*; I look in the Table for the 15 day, and deſcends the ſaids Column, untill I come againſt the Month given, viz. *April*, and I find 4. 36. viz. 4 hours, 36. min. paſt the Suns riſes the ſaids day. In like manner, the 15 day of *May* the Sun riſes 39. min. paſt 3. in the morning: The 15 of *June*, 18 min. paſt 3 in the morning; The 15 of *July*, 50. min. paſt 3. in the morning, &c.

But if you would know the time of the Suns riſing for any other intermediate day, take the difference, and work

work by the Golden Rule, and you shall find the proportiall part to be added.

Example, I desire to know what time the Sun rises the 23 of *August*; I look into the Table, and I find that the Sun rises the 20 day, at 5 min. past 5. and the 25 day, 17 min. past 5. the difference is 12 min. Then I say—— if 5 dayes gives 12 min. What will 3. dayes give? *Ans.* 7. min. which added to 5 h. 5 min. (the time of the Suns rising the 20 day) the aggregate is 5 h. 12 min. for the exact time of the Suns rising the 23 of *August*, as was required.

If you desire to know the time of the Suns setting, substract the time of the Suns rising from 12 hours, and the remainder will be the time of his setting.

Example, I desire to know the time of the Suns setting the 15 day of *July*; I find that he rises that day at

	h.	m.
3 hours 50 min. which known——————from	12	00
I substract the time of Sun rising (the 15 of *July*)	3	50
Rests the exact time of Sun seting the 15 of *July*	8	10

Lastly, Having thus found the time of the Suns setting, if you double the same, you have the whole length of the day, whose complement to 24 hours, is the length of the night, as in the Example preceeding.

	h.	m.
The Suns semidiurnal arch, or time of's seting	8.	10
which doubled, gives the length of the day	16.	20
Whose Complement to	24.	00
Is the nocturnal arch, or length of the night	7.	40

This is so plain, that he which understands it not, his ignorance out-weighs his wit, as much as a Milston out-weighs a Feather, and consequently incapable of Sublimer Arts and Sciences.

CHAP.

CHAP. XXIII.

To find the Golden-Numbers, Epacts, *and age of the Moon for any year of God assign'd.*

1. TO find the Golden-Number, add 1. to the number of years given, the aggregate divide by 19. the remainder is the Golden Number, required.

2. To find the Epact, multiply the Golden Number (so found as aforesaid) by 11, the Product divide by 30. the remainder is the Epact, required.

Example, *Anno Christi*, 1698, I demand the Golden Number and Epact for the saids year?

To 1698. I add 1. the aggregate 1699. I divide by 19. rests (by the quotient) 8. for the Golden Number, which multiplyed by a 11. the Product is 88. this divided by 30. the remainder (besides the quotient) is 28. and so much is the Epact of the saids year 1698. as was required.

3. To know the age of the Moon at all times: Find first the Epact for that year, and unto it add the number of the dayes of the Month, and the Moneths from *March* (counting *March* for one) and the aggregate (if it be less then 30.) is the age of the Moon, required.

Example, I demand the age of the Moon the 20 day of *September* 1664. first I find the Epact for that year (either by the former Rule, or by the Table following) to be 12. to which I add 20. (the day of the Moneth assign'd) the sum is 32. to which I add the number of Moneths from *March*, (calling *March* one, *April* two, *May* three, &c.) which is 7. the aggregate is 39. from which I deduct 29. rests 19. for the age of the Moon the 20 of *September* 1664. as was required.— The operation.

The day of the given Moneth	20	dayes
The number of months from *March*	7	
The Epact of the year assign'd	12	
Aggregate	39	
The Common Lunar revolution. subst.	29	
Rests the age of the Moon, required	19	

But

But because every one cannot Multiply and Divide, that thereby they might find the Golden Numbers and Epacts, and consequently the Age of the Moon: I have therefore composed the following Table, which (by Inspection only) will shew you all the Golden Numbers, Epacts, Sudayes Letters, and Whitsundayes for 51 years to come, beginning *Anno* 1662. ending *Anno* 1713.

Years of Christ	Gol. num.	Epact.	Sun. lett.	Whitsunday.	Years of Christ	Gol. num.	Epact.	Sun. lett.	Whitsunday.
1662	10	20	e	May 18	1688	17	7	ag	June 3
1663	11	1	d	June 7	1689	18	18	f	May 19
1664	12	12	cb	May 29	1690	19	24	e	June 8
1665	13	23	a	May 14	1691	1	11	d	May 31
1666	14	4	g	June 3	1692	2	22	cb	May 15
1667	15	15	f	May 26	1693	3	3	a	June 4
1668	16	26	ed	May 10	1694	4	14	g	May 27
1669	17	7	c	May 30	1695	5	25	f	May 12
1670	18	18	b	May 22	1696	6	6	ed	May 31
1671	19	29	a	June 11	1697	7	17	c	May 23
1672	1	11	gf	May 26	1698	8	28	b	June 12
1673	2	22	e	May 18	1699	9	9	a	May 28
1674	3	3	d	June 7	1700	10	20	gf	May 19
1675	4	14	c	May 23	1701	11	1	e	June 8
1676	5	25	ba	May 14	1702	12	12	d	May 24
1677	6	6	g	June 3	1703	13	23	c	May 16
1678	7	17	f	May 19	1704	14	4	ba	June 4
1679	8	28	e	June 8	1705	15	15	g	May 27
1680	9	9	dc	May 30	1706	16	26	f	May 12
1681	10	20	b	May 22	1707	17	7	e	June 1
1682	11	1	a	June 4	1708	18	18	dc	May 23
1683	12	12	g	May 27	1709	19	29	b	June 12
1684	13	23	fe	May 18	1710	1	11	a	May 28
1685	14	4	d	June 7	1711	2	22	g	May 20
1686	15	15	c	May 23	1712	3	3	fe	June 8
1687	16	26	b	May 15	1713	4	14	d	May 24

The uſe of this Table is this, find the year of God in the Table, and over againſt it, you have (1) the Golden Number: (2.) The Epact: (3.) The Sunday Letter: And (4.) the Month and Day when Whitſunday falls: I ſhall Illuſtrate it by an Example or two.

Suppoſe the year of Chriſt given were 1665. againſt 1665. In the Table I find (1.) 13 for the Golden Number: (2.) 23 for the Epact: (3.) A, for the Sunday Letter: And (4.) *May* the 14 for Whitſunday. — In like manner, if the years aſſigned were 1698. the Golden Number is 8. the Epaſt is 28. the Sunday Letter B. and Whitſunday falls that year on the 12 of *June*, &c. More Examples were ſuperfluous.

Here note, that where you find two Dominical Letters, it ſignifieth that year is Leap-year, and therefore you are to take the firſt of them for *January* and *February*, and the ſecond Letter for all the year after.

CHAP. XXIV.

To find the time of the Moons riſing and ſetting, and how long She ſhines.

BY the true places of the Luminaries, find their oblique Aſcenſions (according to the 21 Chapter, *Propoſition* 11.) Which being known, ſubſtract the oblique Aſcenſion of the Sun, from the oblique Aſcenſion of the Moon, and the Arch remaining converted into time, and added to the time of the Suns riſing, the Aggregate will be the exact time of the Moon (or Stars) riſing as was required. But becauſe every one who peruſeth this Book, cannot underſtand this direction, nor properly apply the ſame to practice. I ſhall therefore make choiſe of that way which I know to be moſt familiar and eaſie for the benefit of all men: Wherefore,

Firſt find the Age of the Moon according to the preceeding Chapter: with which enter the following Table, and ye ſhall find againſt it the hours and minuts of

the

the Moons ſhining, which is to be added to the time of the Suns riſing, if the Moon be encreaſing in light. But to be ſubſtracted if ſhe be decreaſing, &c. and ſo the Sum or difference will be the time of the Moons riſing.

Example, I demand what time the Moon riſes the 5 of *January*, 1662? the ſaids day the Moon is 25 dayes old, (according to my *Mercurius Cœlicus* pag. 15. lately emited for the year 1662.) with which I enter the following Table, and I find that the Moon ſhines 4. h. 00 m. then I look in the 22 Chapter what time the Sun riſes the 5. of *January*, which I find at 8 h. 21 m. Now becauſe the Moon is decreaſing in light, therefore I ſubſtract 4 h. 00 m. (the time that the Moon ſhineth) from 8 h. 21 m. (the time of the Suns riſing) reſts 4 h. 21 m. hence I conclude, that the Moon riſes 21 min. 4. in the morning the 5 of *January* 1662.

Moons Age encreaſing.	The time that the Moon ſhineth. H.	M.	Moons Age decreaſing.
1	0	48	29
2	1	36	28
3	2	24	27
4	3	10	26
5	4	0	25
6	4	48	24
7	5	36	23
8	6	24	22
9	7	10	21
10	8	0	20
11	8	48	19
12	9	36	18
13	10	24	17
14	11	10	16
15	12	0	15

I ſhall add another example for practice. The 14 day of *February* 1662. the Moon is 6 dayes old, with which I enter this annexed Table, and I find that the Moon ſhineth 4 h. 48 min. Then I look for the time of the Suns riſing the 14 day of *February*, which I find (by making proportion) at 6 h. 57 m. And becauſe the Moon is encreaſing (in light) therefore I adde 4 h. 48 min. to 6 h. 57 min. The Sum is a 11 h. 45 min. Wherefore I conclude, that the Moon riſeth (the 14 day of *February* 1662.) at 45 m. paſt a 11 in the forenoon, that is 15 m. *Ante meridiem.*

If you be deſirous to know the time of the Moons ſetting. Then

Then to the time of the Suns setting, add the time of her shining (if she be encreasing) Or substract the same (if she be decreasing) to; or from the time of the Suns setting, and the sum or difference will be the time of her setting: this is so plain, that an example were superfluous.

CHAP. XXV.

To find the Dominical Letters, and dayes of the Week that begins every Moneth, and Moveable Feasts for ever.

TO find the Dominical Letters for ever, I have insert the following Table: Upon each side whereof ye have first the Dominical Letters: And secondly, the years of God respectively, which Inchoats at 1661. and continues till 1688. Where you are to note, that 1688. begins another new Period of years: so that you are to place (if need be) 1689. in stead of 1661. and 1690. in place of 1662. *&c.* The use of this Table is to find the Dominical Letters, and dayes of the Week that begins every Moneth, and consequently what day of the Week any day of the Moneth happens upon.

As for Example, in the year 1667. I find that the Dominical Letter is F. This Dominical Letter F, I find likewise amongst the lower Dominical Letters, at the bottome of the Table, and under it is M, for Munday: Wherefore I conclude, that the first Munday of *Aprile* or *July* falls upon the first day, the second Munday upon the 8 day, *&c.* So after this manner may be found the time that every Munday falls through the Moneths: As also, the dayes of the Week that any day of the Moneth happens on, by observing the dayes under the respective Moneths through the year.

I told you before, that wherever you find two Dominical Letters, it is Leap year, and that you are to take the

the first of them for *January* and *February*, and the next for all the year after. As for Example, the year 1680. D, directs you to Wednesday for the Months of *January* and *February*, and C, to Thursday for all the year after.

Dom. Let.	Year God.	July April	Sept. Dece.	June	mar. feb. no.	August	May	Octob. Jan.	Year God.	Domi. Let.
AG	1688	1	2	3	4	5	6	7	1674	D
F	1661								1675	C
E	1662	8	9	10	11	12	13	14	1676	BA
D	1663								1677	G
QB	1664	15	16	17	18	19	20	21	1678	F
A	1665								1679	E
G	1666	22	23	24	25	26	27	28	1680	DC
F	1667								1681	B
ED	1668	29	30	31					1682	A
C	1669								1683	G
B	1670	G	F	E	D	C	B	A	1684	FE
A	1671								1685	D
GF	1672	S	M	T	W	T	F	S	1686	C
E	1673								1687	B

Lastly, to find the Moveable Feasts,

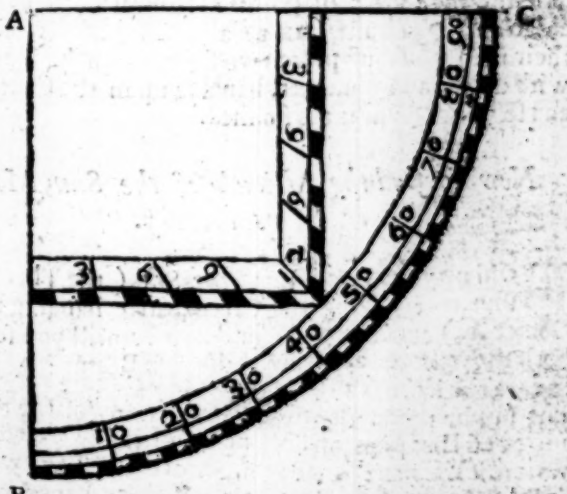
Seek the Change of the Moon in *February*, for that year in which ye desire to know when any of the Moveable Feasts happens, and not upon what day the Change falls; for the next Tuesday is Shrove-Tuesday, or vulgarly called Fastens-Even; but if the Change of the Moon happen on Tuesday, then the next Tuesday succeeding

ceeding is it. The next Sunday is the first Sunday in Lent, six Sundayes after is Easter day, commonly called Pasch day, and the seventh Sunday after that is Whitsunday. This is so plain that it needs no Example.

CHAP. XXVI.

Of the description of the Quadrant, and how to find the Altitude of the Sun, Moon or Stars thereby.

First, having prepared a peece of Box-wood, Pear-tree, Walnut-tree, or good Plain-tree, well plain'd and smooth'd on both sides, in manner of a Quadrant. Draw thereon the two Semidiamiters, A B, and A C, in such manner as they may cut one another, at right Angles (or Square-wayes) in the Center A. Upon which Center A, set on foot of your Compasses. And



(opening

(opening the other to as much a convenient distance as you think fit) with the other describe the Arch, B C. This Arch is called the Limb of the Quadrant, and is divided into 90 equal parts, called degrees thus. First, divide the Arch, B C, into three parts, then every third into three again, so have you nine. Now if ye divide every of those nine into two, so you have 18 parts.

Lastly, If you divide each of these 18 into 5, the total will be 90 degrees. Which (you may sub-divide if quantity will give live) numbred from the left hand towards the right, marking it with 10, 20, 30, 40, *&c.* unto 90 after the usual manner.

As for the Square within, ye shall draw from either side of your Quadrant a right Line, cutting one another at right Angles at the midle of the Quadrant, which is 45 degrees. This Scale or Square you may divide into 12, 60, 100, or 1000, (the more the better and more commodious) equal parts, all marked from the Center A. That side of the Square next the sights, is called, *Umbra recta*, or parts of right shaddow. The other side is called, *Umbra versa*, or points of contrary shaddow.

To this Quadrant (as to all others of this kind in their use) you must place two sights upon the Line A C, with a Line and Plummet, hanging up in the Center A, and so your Quadrant is finished.

Now to find the Altitude of the Sun, Moon or Stars thereby.

HOld up your Quadrant to the Sun (the Threed and Plummet having their free course hanging in the Center A,) moving it up or down, untill you see that both the sights have received the Sun Beams: At which instant mark the fall of the Line and Plummet, for it will cut (upon the Limb of your Quadrant) the degree and minut of the Suns Altitude, at the time of your observation.

But if you desire (in the night time) to find the Altitude

Altitude of the Planets or fixed Stars, then ſet the Quadrant to your eye, looking through both the ſights, untill you eſpy that Planet or Star whoſe Altitude you require, which having found, your Plummet hanging at liberty, mark the fall thereof upon the Quadrants Limb, and it will ſhow you the Altitude of that Coeleſtial Body, as you required.

CHAP. XXVII.

How to finde the Altitude of any Tower, Caſtle or Steeple, &c.

IF I ſhould endeavour to inſtruct you by Precept and Example, in every various Scituation and Demonſtration that might be propoſed, for attaining the true heights of Towers, Caſtles, Steeples or Hills, &c. by the Quadrant, I ſhould exceed my intention in this place, for it would require a peculiar Treatiſe by it ſelf (which I may happily publiſh, if God continue my life.) And therefore I ſhall (here in this Chapter) only ſhew you, how (by your Quadrant, with, and without Calculation) to know all heights acceſſible.

Firſt, by Calculation.

Lift up your Quadrant towards the Tower or Steeple whoſe Altitude you require, untill you behold (through both the ſights) the very Summity or Top; which found, mark well the Diviſions or Points in your Square, which the Threed and Plummet did fall on: And if they be of right ſhaddow (that is to ſay when the Threed and Plummet falls on that ſide of the Square which is next the ſights) Then ſay, As the Pares cut, is to the whole Scale. So is the length of the Baſe, to the Altitude of the Tower: And therefore multiply the diſtance from you to the Baſe by 12. the product divide by the pares

parts cut (by the fall of the Plummet) the Quotient will shew you the Altitude required. ——— But if the Threed fall upon the contrary ſhaddow, then ſay, As the whole Scale is to the parts cut, So is the length of the Baſe, to the Altitude required. And therefore multiply the Baſe by the parts cut, the product divide by the whole Scale, and the Quotient is your deſired Altitude above the Level of your Eye.

Example, Suppoſe the Threed with the Plummet ſhould happen to fall on 6 parts of contrary ſhaddow, and the diſtance from your ſtanding to the Baſe of the Tower be 120 foot: I ſay, ——— As the whole Scale 12, is to the parts cut 6, So is the length of the Baſe 120 foot, to the Altitude of the Tower 60 foot. Thus multiplying the Baſe 120, by the parts cut 6, the product 720 divided by 12, the Quotient is juſt 60, and ſo many foot high is that Tower or Steeple above the Level of your Eye.

Secondly, Without Calculation.

Becauſe there may be ſome Ingenious Men, that would know the Altitude of a place, and yet hath no *Arithmetick* to Multiply and Divide: therefore to ſatisfie ſuch, I give this Direction. That if the Tower or Steeple, &c. be acceſſible, then hold your Quadrant up towards it, looking diligently through both the ſights, going backward or forward, untill the Line of the Plummet fall on 45 degrees. Which found, Meaſure the diſtance between your ſtanding and the Baſe, for that is the juſt Altitude of the Tower, above the Level of your Eye, as you required.

CHAP. XXVIII.

How to find out the Latitude of a place, or the Poles Elevation above the Horizon.

YOu muſt diligently attend with your Quadrant about noon, to find the Suns Meridian Altitude, which

which you may eaſily do, by obſerving carefully a little before noon, and a little after, untill you perceive the Sun begin to fall again, then marking what was his greateſt Meridian Altitude, reſerve it till anone.

Then find the Suns declination according to the firſt Propoſition of the 21 Chapter, and conſider whither it be North or South. The declination of the Sun is North, when the day is more then 12 hours long: and South when it's leſſe then 12 hours long. And therefore having found the Meridian, Altitude and Declination of the Sun, you may eaſily find the Latitude of the place after this manner.

If the Sun hath North Declination, then ſubſtract his Declination out of his Meridian Altitude, and the remainder will be the Altitude of the Equinoctial, or complement of your Latitude. But if the Sun hath South Declination, then adde it to his Meridian Altitude: the Aggregate will be the heigth of the Equinoctial, which ſubſtracted from 90 degrees, there will remain the Latitude of your place, or Altitude of the Pole above your Horizon.

As for Example, *Anno Chriſti* 1661. *September* 21. At *Edinburgh* I carefully obſerved the Suns Meridian, Altitude, which I found to be 30 degr. 32 min. At which time the Suns true place was *Libra*, 8 d. 35 m. 45 ſ. And his Declination South, 3 d. 25 m. 12 ſ. Now becauſe the declination is South, I adde it to the Suns Meridian Altitude.

	d.	m.
The Meridian Altitude of the Sun obſerved.	30	32
The Suns declination (becauſe it's ſouth) add,	3	25
The Agg. is the heighth of the Equinoctial.	33.	57
Which ſubſtracted from	90	00
Reſts the Latitude of *Edinburgh*, viz.	56	03

Another Example I ſhall give you. In the ſaids year, upon the 10th of *October*, at *Edinburgh*: I obſerved the Suns Meridian Altitude to be 23 d. 22 min. at which time his true place was *Libra*, 27 d. 26 m. having South Declination, 10 d. 35 m. which ordered as aforeſaid, it giveth the Latitude of *Edinburgh*, 56 d. 3 m. as before.

In these Examples, I have purposely omitted the Sans Meridian *Paralaxis Altitudinis*, because I would not trouble you with such Nyceties; neither is such a precisenesse necessary for every common observation; for as it's difficult to obtain (because it requires a peculiar Calculation, which depends upon *Trigonometry*) so it's as rarely understood amongst the Vulgar. Nevertheless, for the benefit of my Countrey-men, I shall in a Chapter by it self, demonstrate what it is, and also how to calculate it at all times.

CHAP. XXIX.

To find the Diameter, Circumference, Solidity and Superficies of any Sphere or Globe.

TO resolve these Geometrical Propositions, I shall use this Method, *viz.*

The Diameter of any Sphere, Globe, or Circle, being given to find the Circumference thereof.

Multiply the given Diameter by 22. the Product divide by 7. the Quotient will shew the Circumference required.

Example, Suppose I have a Sphere, Globe, or Circle whose Diameter is 14 Inches: I demand how many Inches it is in Circumference? I say, as 7 is to 22. so is the given Diameter 14. to the required Circumference 44 and so many Inches it's round.

2. The Circumference of any Sphere, Globe, or Circle being given to find the Diameter thereof.

Multiply the given Circumference by 7, the Product divide by 12, the Quotient is the Diameter thereof.

Example, The Circumference aforesaid being 44. I demand how much is the Diameter thereof. I say, as 22 is to 7. So is the given Circumference 44 Inches, to the required Diameter 14 Inches.

3. The

3. { The Diameter and Circumference of any Sphere, or Globe, being given, to find the Superficies thereof.

Multiply the Circumference by the Diameter, the product will be the superficies of the Globe or Sphere, *&c.*

Example, Let the Diameter be 14 Inches, and the Circumference 44 Inches, the one multiplied by the other, the product is 616 Inches, and so much is the superficies of the saids Globe or Sphere, as was required.

4. { The Diameter of any Sphere or Globe being given to find the Crasitude or Solidity thereof.

Multiply the given Diameter cubicaly, the product multiply (again) by a 11. the last product divided by 21. the Quotient will shew the Crasitude required.

Example, The Diameter of a Sphere or Globe being 14 Inches. I demand how many Inches is contained in its solid capacity? — 14 muliplyed cubicaly, the product is 2744. This again by a 11 maketh 30184. which divided by 21. the Quotient is 1437 and $\frac{1}{21}$, and so many Inches it is in Solidity, or Crasitude, as was required.

Here note, that a Cubical foot (that is 12 Inches every way) contains in it 1728 solid Inches.

CHAP. XXX.

How to find the weight of a Globe or Ball of Mettal or Stone, without weighing them in Ballances.

First, Find the said capacity of the Globe or Ball exactly in Inches, as I desired you in the preceeding Chapter. Secondly, Consider its Mettal, whither it be Gold, Silver, Brasse, Iron, *&c.* or Marble, or ordinary Free-stone, find the same (whatsoever Mettal it be) in the following Table: and against it on the left hand, you will find a Number, and in the top the common Ra-

dius of all these Mettals which known to find the weight of the Globe or Ball in ounces, I use this Analagy.

As the Radius, is to the solid Inches of the Mettal or Stone (named) so is the left hand Number of the saids Mettal or Stone, to the ounces of the weight thereof.

A most excellent Table shewing the Weights and Measures of all Mettals and Stones.

The common *Radius* is a 1000.

Left hand Number.		Right hand number.
13200	Gold.	120
7880	Quick-silver.	140
6798	Lead.	160
6315	Silver.	180
4958	Brasse.	200
4333	Iron.	230
4067	Tin.	250
1645	Marble.	680
1420	Ord. Freeston.	710

Example, I have an Iron Bullet of 8 Inches Diameter which containeth (according to the preceeding Chapter) 268, 1—5 solid Inches: I demand how many ounces the saids Bullet weighs? ——— I say, as the Radius 1000 is to 268, 1—5 Inches, so is the left hand Number 4333 to 1162 ounces, that is, 72 pound, 10 ounces, as was required. ——— If the same Ball had been Silver, I demand the weight thereof?

As the Radius a 1000, is to 268, 1—5, so is the left hand number 6315 to 1693 ounces (and something more then a half) that is, 105 pound, 13 ounces (and 683—1000 part of an ounce.)

In like manner, a round Bullet of ordinary Free-stone of 8 Inches Diameter: I demand how much it wil weigh? I say, as the Radius 1000, is to 268, 1—5 (the solid capacity) so is 1420, to 380, 211—250, that is, 23 pound, 12 ounces, 13 drop. Hence it appears, that a Silver, Iron,

Iron and ordinary Free-ſtone Bullet, of equal Diameters, weighs as followeth, *viz.* Silver 1693 ounces, Iron 1162, and ordinary Free-ſtone 380, by their differences you may find out their ſeveral proportions, which one Mettall bears to another in bodies of equal Magnitudes and Diameters, by theſe three Examples. You may finde the weight of any material Globe or Bullet of whatſoever bulk, without weighing the ſame in Scales or Ballances.

This Table hath yet another uſe; for if the weight of any Globe or Ball be given in ounces, you may find the ſolid capacity thereof in ounces, thus. As the Radius 1000, is to the weight of the mettall or Stone (named) in ounces, ſo is the right hand Number, to the ſolid capacity in Inches.

Example, An Iron Bullet of 8 Inches Diameter aforeſaid, weighs 1162 ounces. I demand the number of its ſolid capacity in Inches.——— I ſay, as the Radius 1000, is to 1162 ounces, ſo is 230 to 268 *ferè*, the ſolid Inches contained therein. More examples (in a thing ſo plain) were but ſuperfluous.

CHAP. XXXI.

Of the Planets Paralaxis Altitudinis, *and how to calculate the ſame at all times.*

I Promiſed in the 28 Chapter preceeding, to ſhow you both a Demonſtration of, and alſo by Examples how, to Calculate the *Paralaxis Altitudinis* of the Planets, for any time Aſſign'd: And I am now come to perform what I there promiſed, with as much brevity and facility as I can. ——— Which take as followeth.

In this Figure, Z, B, A, I, H, repreſents the Meridian, K, C, G, the Orbe of the Sun (or any other Planet) D, the Center of the Earth, E, F, the Superficies thereof. Z, the Zenith. E, I, the Horizon, C, the place of the Sun

Sun (or any other Planet) in his Orbe. The Line, D, C, B, represents the planets true place, from the Center of the Earth, in the Meridian at, B. The Line, E, C, A, his apparent place, as it appeareth from us at E. The Angle of the *Paralax* of Altitude, is, A, C, B, (which is equal to E, C, D.) The Angle, A, E, I, is the Angle of the apparent Altitude, of the Planet above the Horizon (which in this Example we suppose to be 27 degr. 40 min.) whose Complement is, Z, E, A, (62 deg. 20 min.) ——— Here you may see that the apparent Altitude of the Planets, is lesse from the Superficies (or place of Observation at E,) then from the Center of the Earth; (at D,) from which place the Planet in his Orb appears higher in the Meridian at B, then he doth from E, in the Meridian at A, so that the Angle of the Planets *Paralaxis Altitudinis*, is nothing else but the difference between the true and apparent Altitude, in the Meridian or Circle of Altitude.

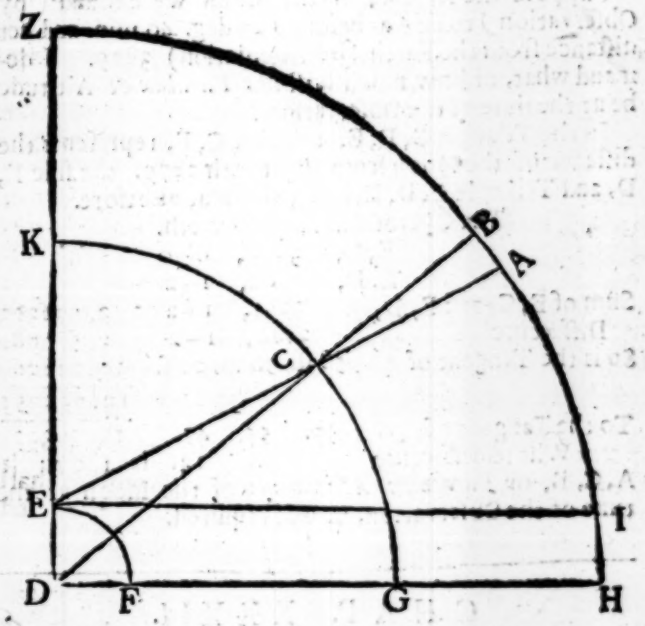
Here note, that the nearer a Planet is to the Horizon and Center of the Earth, the greater is the *Paralax* thereof. And hence it is, that the Moon (because of her Vicinity to the Earth) hath the greatest *Paralax* of all the other Planets. And that's a main reason why we have so few Solar Eclipses, and those few have so little obscurity. Because frequently her Southern *Paralax* exceeds her Northern Latitude (the greatest Eclipses happening alwayes when they are equal, and least when her Latitude is South) *&c.* These things being premised, I come next to practice: And for Illustration, I shall add an Example of either of the Luminaries, for to find their *Paralaxis Altitudinis* at any time Assign'd.

First, an Example in the Sun.

Suppose the Altitude of the Sun to be (by observation) 27 deg. 40 min. and his distance from the Earth (by calculation) 101798 parts: I demand how much will his *Paralax* of Altitude (then) be? ——— To resolve this (and all such like) Questions. I return to this annexed Diagram, for Demonstrations sake, where, In the Triangle, C, D, E, we have known, [1] E, C, the

the distance of the Sun from the Earth 101798. [2] E, D, the Semidiamiter of the Earth 68, 1—2. [3] The Triangle, C, E, D, 117 d. 40 m. which bisected, gives 58 deg. 50 min. the half sum of the opposite Angles unknown. Hence to find the *Paralax* of Altitude, A,C,B. Say by this Analagy.

As the sum, is to the difference, so is the Tangent of the half sum of the opposite Angles unknown, To the Tangent of an Arch: whose difference is the *Paralaxis Altitudinis* required.



The Operation.

E, C.	101798,	0—0
E, D.	68,	1—2

Sum

			Logarithm.
Sum of E, C, and E, D.	101866,	1—2	5,008244
Difference	101729,	1—2	5,007658
So is the Tangent of	58 d, 50 m.	00 ſ.	10,218369
			15,226027
To the Tangent of	58. 47.	56.	10,217783
Whoſe difference	2.	4.	is the Angle, A,

C, B, or the Suns *Paralax* of Altitude as was tequired.

The ſecond Example is of the Moon.

Suppoſe the Altitude of the Moon were found (by Obſervation) to be (as before) 27 deg. 40 min. and her diſtance from the Earth (by Calculation) 3879. I demand what, or how much will her *Paralax* of Altitude be at the time of the Obſervation?

In the Triangle C, D, E, the Line C, E, repreſents the diſtance of the Moon from the Earth 3879. the ſid E, D, and Triangle C, D, E, being the ſame as before.

The Operation is as followeth.

E, C,	3879,	0—0	
E, D,	68,	1—2	
Sum of E, C, and E, D,	3957,	1—2	3,596322
Difference	3810,	1—2	3,580982
So is the Tangent of	58 d. 50 m.	00 ſ.	10,218369
			13,799351
To the Tangent of	57. 55.	47.	10,203029
Whoſe difference	54.	13.	is the Angle

A, C, E, or *Paralaxis Altitudinis* of the Moon at the time of the Obſervation, as was required.

CHAP. XXXII.

To find the Lord of the hour for any time aſſign'd.

FIrſt find the time of the Suns riſing (for that day wherein you would know the Lord of the Hour) according

according to the 24 Chapter: Betwixt which, and the Queſtion propounded or aſſign'd: Find the Intervall of hours and minuts, (which for your greater facility in operation) you may reduce into minuts (by multiplying your hours by 60.) the product ſhall be your dividend.

Secondly, Enter the Table following, with your Month on the Margent, and the 5, 10, 15, 20, 25, or 30 day on the top, (taking that day which is neereſt) and in the common angle you will find the length of the Planetary hour that day, which is your Diviſor, by which you are to divide the dividend aforeſaid; the Quotient ſhal ſhew you how many Planets compleatly have ruled, and the remainder (if there be any) is the Planet inſtantly ruling at the time of the Queſtion propounded or aſſign'd: Which to denominate, conſider the day of the week in which the Queſtion is propounded, And,

If the day be *Sunday*, give the firſt hour to the *Sun*, the 2 to *Venus*, the 3 to *Mercury*, the 4 to the *Moon*, &c.

If the day be *Munday*, give the firſt hour to the *Moon*, the 2 to *Saturn*, the 3 to *Jupiter*, the 4 to *Mars*, &c.

If the day be *Tueſday*, give the firſt hour to *Mars*, the 2. to the *Sun*, the 3 to *Venus*, the 4 to *Mercury*, &c.

If the day be *Wedneſday*, give the firſt hour to *Mercury*, the 2 to the *Moon*, the 3 to *Saturn*, the 4 to *Jupiter*, &c.

If the day be *Thurſday*, give the firſt hour to *Jupiter*, the 2 to *Mars*, the 3 to the *Sun*, the 4 to *Venus*, &c.

If the day be *Friday*, give the firſt hour to *Venus*, the 2 to *Mercury*, the 3 to the *Moon*, the 4 to *Saturn*, &c.

If the day be *Saturnday*, give the firſt hour to *Saturn*, the 2 to *Jupiter*, the 3 to *Mars*, the 4 to the *Sun*, &c. and ſo you wil eaſily find that Planet who is Lord of the hour at the time aſſign'd. For illuſtration of the Premiſes, I ſhall propound an Example, with variety of operations, that you may chooſe the eaſieſt.

Example, I demand what Planet ruſes the 5 of *Auguſt*, (the day of the week being *Saturnday*) at 45. min. paſt 9 in the morning.

According to the 24 Chapter, I find that the Sun riſeth

the

the 5 of *August*, at 32 min. past 4 in the morning. Now because the Question is propounded in the fore-noon, therefore I substract 4 h. 32 min. (the time of the Suns rising) from 9 h. 45 min. (the time assign'd) rests 5 h. 13 min. (which is the intevall between the Suns rising and time of the Question propounded) which I reduce into min (by multiplying by 60) the product is 313 min. for the dividend.

Secondly, in the Table following, against the 5 of *August*, I find that the length of the Planetary hour is, 1 h. 15 min. or 75 min. by which I divide 313. the Quotient is 4 and 13 min. remaining; that is, 4 Planets have compleetly ruled, and the 5 is ruling, which to denominate; the day of the Question being *Saturnday*; I give the first hour to *Saturn*, the 2 to *Jupiter*, the 3 to *Mars*, the 4 to the *Sun*, and the 13 min. remaining to *Venus*: Wherefore I conclude, that *Venus* is Lady of the hour (at the time of the Question propounded) and hath ruled 13 min. of her time.——this is the first.

A most excellent Table of the length of the Planetary hours, for the Latitude of 56 d. 20 m.

Names of the Months.	5 day H. M.	10 day H. M.	15 day H. M.	20 day H. M.	25 day H. M.	30 day H. M.
January	0 36	0 37	0 39	0 41	0 43	0 45
February	0 47	0 49	0 51	0 53	0 55	0
March	0 58	1 0	1 2	1 4	1 6	1 8
April	1 10	1 12	1 14	1 16	1 18	1 20
May	1 21	1 22	1 23	1 25	1 25	1 26
June	1 27	1 27	1 27	1 26	1 26	1 25
July	1 24	1 23	1 22	1 20	1 18	1 16
August	1 15	1 13	1 11	1 9	1 7	1 5
September	1 3	0 1	0 59	0 57	0 55	0 53
October	0 51	1 49	0 47	0 45	0 43	0 42
November	0 40	0 38	0 37	0 35	0 34	0 34
December	0 33	0 33	0 33	0 33	0 34	0 35

Length of the Planetary hour in h. and m.

Variety in operation, the ſecond is more brief by the *Logarithmes*, thus:

	m.	*Logarith.*
Interval between the Sun riſing, and time of the Queſtion propounded: reduced, is	313	2. 495544
Length of the Planetary hour in min.	75	1. 875061
Reſts the number of Planets that have ruled, compleet, *viz.* 4.	4.	0. 620485

The third, laſt and eaſieſt of all, is this operation following, the day of the week being *Saturnday*, *Saturn* begins to rule.

	h.	m.	
At the Suns riſing, viz.	4.	32.	
And continues to rule	1.	15	length Planetary h.
Untill	5	47	ſum
Then *Jupiter* begins	1	15	add
And rules till	7	02	ſum
Then *Mars* begins	1	15	add
and rules till	8	17	ſum
Then *Sol* begins	1	15	add
and rules till	9	32	at which time *Venus*

begins to rule. This is the moſt eaſie way of all others; for it requires neither Multiplication nor Diviſion, but performed only by a continual addition of the length of the Planetary hour, to the time of the Suns riſing, untill you come to the time propounded, &c.

CHAP. XXXIII.

Shewing what Moon makes full Sea in moſt Sea-Port Towns in Scotland, England, *and* Ireland, *&c.*

1. A South or North Moon makes full ſea at *Queenborough*, *Southampton*, *Portſmouth*, Iſle of *Wight Beachy*, the *Spilts*, *Kentiſh-knock*, half tide at *Dunkirk*.

2. A South by weſt, or North by eaſt Moon, makes full ſea

ſea at *Aberdeen*, *Rocheſter*, *Malden*, *Redban*, and weſt end of the *Black-tail*.

3. A South ſouthweſt, or North northeaſt Moon, at *Graves-end*, *Downs*, *Rumney*, *Tenet*, *Silly* half tide, *Blackneſſe*, *Ramkins*, *Fernhead*, *Leith*.

4. A Southweſt by ſouth, or Northeaſt by north Moon at *Dundee*, St. *Andrews*, *Lisbane*, St. *Lucas*, *Bell* Iſle, *Holy*-Iſle.

5. A Southweſt, or Northeaſt Moon, at *London*, *Tinmouth*, *Hartlepole*, *Whitby*, *Amſterdam*, *Gaſconygne*, *Galizia*.

6. A Southweſt by weſt, or Northeaſt by eaſt Moon, at *Berwick*, *Flamboroughhead*, *Burlington-bay*, *Oſtend*, *Fluſhing Burdeaux*, *Fountneſſe*.

7. When the Moon is W. S. W. or E. N. E. it's full Sea at *Scarburgh*. quarter tide, *Lawrens*, *Mountis*-bay *Seaverin*, *Kingſail*, *Cork*, *Haven*, *Baltamore*, *Dungarrin*, *Callis*, *Creek*, *Blay*, ſeven *Iſles*.

8. A W. by S. or E. by N. Moon, at *Falmouth*, *Foy*, *Humber*, *Merles*, *Newcaſtle*, *Dartmouth*, *Forby*, *Coldby*, *Gernſey*, St. *Mallowes*, *Arbroth*, *Liſard*.

9. An E. or W. Moon makes full ſea at *Plymouth*, *Waymouth*, *Hull*, *Lin*, *Lundy*, *Antwerp*, *Holines* of *Briſtol*, *Davids head*, *Concalo*.

10. An E. by S. or W. by N. Moon at *Briſtol*, and at *Foulneſſe* at the *Start*.

11. An E. S. E. or W. N. W. Moon at *Milford*, *Bridge Water*, *Ex-water*, *Lands-end*, *Waterford*, *Cupcleer*, *Aberwarick*, *Texel*.

12. A S. E. by W. or N. W. by W. Moon, at *Portland*, *Peterport*, *Harflew*, *Hague*, St. *Magnes ſound*, *Dublin*, *Lambay*, *Macknels* Caſtle.

13. A S. E. or N. W. Moon, at *Pool*, St. *Helens*, *Iſle of Man*, *Catneſſe*, *Orkney*, *Fair Iſles*, *Dumbar*, *Kildren*, the *Baſſe Iſle*, the *Caſquers deep* half tide.

14. A S. W. by S. or N. W. by N. Moon, at *Needles*, *Exford*, *Layſto*, South and North *Foreland*.

15. A S. S. E. or N. N. W. Moon, at *Yarmouth*, *Dover*, *Harwich*, *Firth*, *Bullein*, St. *Johns deluce*, *Calis Road*.

16. A S. by E. or N. by W. Moon, at *Rye*, *Winchley*, *Gorend*, *Thames Roads*.

I have here added a peculiar tide Table for the honourable Cities of *Aberdeen* and *Dundee*, the Town of *Lieth* and *Dumbar*. For which places, you have no more ado, but enter the Table with the Age of the Moon, and against the respective places, you may know for ever, when it will be full sea in any of them, as by one example I shall demonstrate.

Moons Age	increas.	days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	decres.		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Aberdeen.		d. M.	1 33	2 21	3 9	3 57	4 45	5 33	6 21	7 9	7 57	8 45	9 33	10 21	11 9	11 57	12 45
Dundie and *S. Andrews.*		H. M.	3 51	4 39	5 27	6 15	7 3	7 51	8 39	9 27	10 15	11 3	11 51	12 39	1 27	2 15	3 3
Leith.		H. M.	2 20	3 8	3 56	4 44	5 32	6 20	7 8	7 56	8 44	9 32	10 20	11 8	11 56	12 44	1 32
Dumbar.		H. M.	9 48	10 36	11 24	12 12	12 0	11 48	11 36	11 24	12 12	12 0	11 48	11 36	11 24	12 12	12 0

I demand the time of full sea at *Leith* the 20 day of *February*, 1662. the said day the Moons Age is 12. With which Enter the Table, and finding 12 the Moons Age on the top of the Table, I descend the Column, until I come against *Leith*, and I find a 11. 8. *viz.* a 11 h. 8 m. in the forenoon it's full sea at *Leith* the 20 of *February* 1662. as was required. In like manner, the Moon being 12 days old, it will be full sea at *Aberdeen* at 10 h. at 11 m. past. At *Dundie* or St. *Andrews* at 11 h. 51 m. and at *Dumbar* at 6 h. 36 min.

FINIS.

POSTSCRIPT.

READER, An urgent buſineſſe into the Weſt, occaſioned my Remotion from the Preſſe, which did exceedingly Impede my neceſſary Attendance thereon. Nevertheleſſe, at my return, I diligently examined the Printed Sheets, and I cannot but highly commend the Diligence and Circumſpection of the Printers: who (not being acquainted with this kind of Learning (and which is more) not having my Attendance for Correction of the Erratas, yet) have ſufficiently acquitted themſelves. However, if thou, in thy peruſal, meet with any faults; whither Literal, Syllabical, Dictional or Sententional (for it's impoſſible, conſidering the Premiſes, to evade ſome, or all of theſe, eſpecially in a work of this nature, *&c.*) I requeſt thy courteſie to amend it with thy Pen, omitting all cenſorious Imputations.

In the ſeveral Propoſitions of *Aſtronomy*, I confeſſe, I ſhould have been ſomewhat more plain, in giving you the practical operations by the Sines and Tangents, as I did there ſeveral Analogy's: But preſuppoſing the ingenious to underſtand the latter, he cannot but (with ſmall pains) overcome the former. Beſides, it would have exceeded my limits in this place, to have illuſtrated the whole Propoſitions in *Aſtronomy* by Precept and Example; but I ſhould not have been ſo brief, could I poſſibly have procured more time, which by no means would be granted: And therefore I reſerve theſe untill a more convenient opportunity. —— Farewell.

Die veneris, 18 *Apr.*
Ah. 30 m. A. M.
1662.

Soli DEO Gloria.

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